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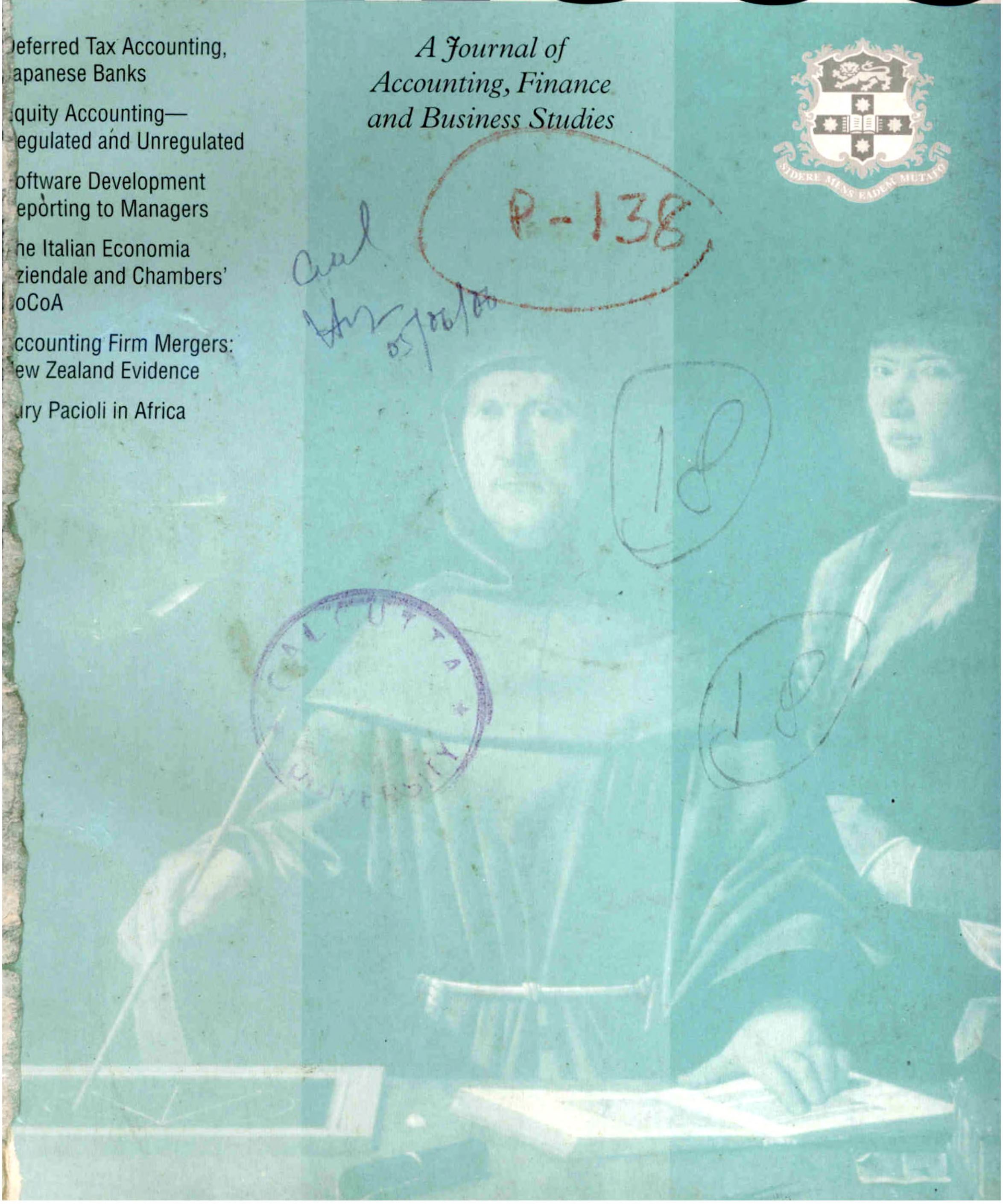

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ABACUS QUARTERLY

EDITORIAL

The current issue heralds *Abacus* as a quarterly publication. Other issues will appear in June, September and December. At 512 pages per volume, the journal continues to be an outlet for quality research examining matters directed to improving accounting thought and practice. Abacus reaches to hard-copy subscribers in more than fifty countries and to many more in e-journal form. The emphasis continues to be on 'international studies on accounting'.

This issue entails a 'standard' six article format. Different formats will apply for other issues in 2006. The June issue will contain a mini-forum (four papers or two-thirds of an issue) on the principles versus rules (true and fair and substance over form) debate plus two other papers. In September there will be a complete special forum issue covering empirical works on matters related to IFRSs and exploring the possibility of evidence-based research assisting policy makers. Contributions will document the way many European countries and the U.S.A. are coping with the convergence to an international financial reporting regime. Preliminary papers were presented and reviewed at an Abacus Forum, Contemporary Issues in International Financial Reporting, held at The University of Sydney on 1–2 December 2005. That forum was the first of a proposed series of international forum conferences to coincide with the move by *Abacus* to quarterly publication. Other scheduled forums will explore the topics of: principles versus rules, distress prediction, and proprietary cost disclosures. Further details of these will appear in later issues.

An increased Board membership was flagged in the October issue. As the inside cover lists, Board membership now approaches forty. Also, a complete set of back issues of more than forty years of *Abacus* which have been digitized (see advertisement in the last issue) is now available to researchers in an e-accessible form from the Blackwells website using its Synergy search engine. Completing the initiatives, *Abacus* has a new colour and cover design. We have gained permission to reproduce Jacopo de Barbari's classic *Portrait of Pacioli* (1445–1514), reflecting the fact the *Abacus* is the official journal of the Sydney University Pacioli Society (for historical details on the Society see Editorial, February 2003).

Continuing *Abacus'* lengthy tradition (see Editorial, February 2005), the subject matter and research methods of articles in the current issue are varied. The lead article by Gee and Mano provides case-based evidence on the importance of the way Japanese banks used Japanese GAAP to report on a deferred tax basis. This was partially responsible for those banks that had significant amounts of non-performing loans being able to meet their regulatory capital requirements during the period 2002–04. Pessimistically, they conclude by suggesting that 'Tackling the problem of deferred tax accounting by imposing stricter conditions on the recognition of deferred tax assets in the financial statements, rather than just in relation to regulatory capital, might cause a number of bankruptcies of large Japanese banks'.

Morris and Gordon continue the financial reporting theme. They examine empirically the adoption of equity accounting in regulated and unregulated settings, namely, before and after the introduction in Australia of AAS 14 in 1984. Considering several purported motives for adoption, they conclude that their results 'are consistent with equity accounting being adopted opportunistically [and that] there is limited evidence to support contractual efficiency motives'.

Moving to Board oversight matters and the role of accounting for software development projects, Oliver and Walker extend an earlier case study in the February 2005 issue. They examine here the reporting and governance issues within organizations, especially concentrating on how information about progressive expenditure on software development projects might be reported to senior managers. They conclude that there is a need for more oversight of the impact of software development reporting, advocating that the Board should establish a specialist IT governance subcommittee for such oversight. A model charter for that committee is provided in an appendix.

Capalbo and Clarke examine theoretical questions related to many aspects of accounting measurement that underpin the adoption of the International Financial Reporting Standards, namely, an asset or liability's fair value and calculations of net present values in assessing, *inter alia*, asset impairment. This is done by analyses of what are perceived by many to be two extreme systems of accounting, Italy's Economia Aziendale and Chambers' *Co*ntinuously *Co*ntemporary *A*ccounting (CoCoA). The former entails the *ex ante* financial calculation of a *value of the firm* drawing on net present values, while the latter entails a system of accounting for an all-inclusive income with assets measured in terms of their current cash equivalents. While primarily examining the relationship between Economia Aziendale and CoCoA, related issues highlighted in this work reveal general insights into debates about the limited nature of essentially historical cost-based financial statements, including their failure to provide data on the value of the firm as a whole. Capalbo and Clarke also consider some of the problems of future-oriented statements, such as those which will arise from complying with IFRSs based on 'fair values', especially when fair value is deemed to be synonymous with deprival value.

Baskerville and Hay provide further evidence on the outcomes of accounting firm mergers. Earlier works have primarily used U.S. data, but more importantly the current article's main contribution is to consider the more extensive (relative to U.S. studies) New Zealand audit fee data, as well as partner interview data from several case interviews. The latter confirm that the cultural differences within audit firms will be critical factors in determining which group of partners dominates in the merged firm.

Finally, and by happy coincidence given the new *Abacus* cover depicting Barbari's *Portrait of Pacioli*, Sy and Tinker seek to 'Bury Pacioli in Africa'. Their historical work proposes burying Pacioli the Bookkeeper (technocrat) and redeeming Pacioli the Social Actor by explicating the social, cultural and political content inherent in his work, and that found in even more explicit pre-Paciolian ancient texts (particularly those from Africa, that reach back to the Dawn of Civilization). The work has significance as it is one of the first to explore an emerging branch of accounting which examines the role of record keeping in primitive cultures.

As this Editorial goes to press, internationally moves continue to emphasize the need for some form of values rather than costs to be reported in companies' financial statements. Consider the proposed market-value based proposals in the latest working draft of the FASB's Exposure Draft, *Fair Value Measurements* (FAS No.15X, December 2005) and the CFA Institute's, *A Comprehensive Business Reporting Model: Financial Reporting for Investors* (24 October 2005). The global economy and global reporting demands are pressing for changes to the conventional, essentially *capitalization-of-expenses based*, system of financial reporting. The need for academics to provide evidence about such moves (especially the arguments used to promote such changes) has never been greater.

Graeme Dean
The University of Sydney
December 2005

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MARIA A. GEE AND TOMOKO MANO

Accounting for Deferred Tax in Japanese Banks and the Consequences for Their International Operations

In recent years, financial reporting has changed in Japan towards the requirements of internationally recognized accounting standards. At the same time, banks suffered significant bad debts on their loans and it became difficult to maintain capital adequacy ratios at the level required for international operations. In this context, using as case studies the five major banking groups in Japan from 2002 to 2004, we address four related research questions concerned with the importance of deferred tax for the maintenance of regulatory capital. The responses of the government, regulatory agencies and auditors to problems with deferred tax accounting are also considered. We find that, without deferred tax assets, the five major banking groups would not have been allowed to operate internationally. We also suggest implications, and conclude that the solutions to these problems lie not just with the accounting profession but also with the government and regulatory agencies, as part of wider financial, rather than accounting, reform.

Key words: Accounting standards; Banks; Deferred tax; Harmonization; Japan.

Financial reforms in Japan have been designed to make the Japanese financial market comparable to those in New York and London. As part of this reform, financial reporting has changed and there are moves to converge toward internationally recognized accounting standards, most recently confirmed by the announcement of a joint project between the Accounting Standards Board of Japan (ASBJ) and the IASB (ASBJ, 2005). Economic and political factors, changes in the tax base and the introduction of a deferred tax standard have led to large deferred tax assets in the accounts of Japanese banking groups. The recognition of deferred tax assets results in a capital balance that is higher than it would be if these assets were written off. Balance sheet capital is especially important for banks, since one of the requirements of the Bank for International Settlements (BIS) is that, in order to operate internationally, a bank's capital should be at least equal to 8 per cent of risk-weighted assets.

This article examines four related research questions in relation to deferred tax and Japanese banks. First, how important were deferred tax assets in the Japanese

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banking sector from 2002 to 2004? Second, were these assets important in the context of maintaining 'regulatory capital'? Regulatory capital here means the amount of capital that a bank is required to maintain in order to operate internationally.[1] BIS requires that banks operating internationally have balance sheet capital equivalent to a minimum of 8 per cent of risk-weighted assets (BIS, 1988, para. 44; 2004, para. 5).[2] Third, what problems with deferred tax accounting were revealed? Fourth, what were the responses of regulatory agencies and the auditing profession to these issues? The applied issues examined have implications for all those contemplating international accounting convergence prospects.

The Japanese deferred tax standard was introduced in 1998, and its content and the similarities with IAS 12 (and therefore SFAS 109) are discussed, together with the more general background to deferred tax accounting.

The inclusion of deferred tax assets in the balance sheets of the five largest banking groups is used as an example of current practice. The effect on the capital adequacy ratio should these assets be written off is demonstrated for each of the groups. The special cases of Resona Holdings and Ashikaga Bank are also examined.

The article shows that government, regulatory agencies and auditors have responded to problems created by bad loans and deferred tax accounting. Throughout, measures were put in place to protect investors, and these are briefly described. Proposals to tackle the banks' problems of non-performing loans and the recognition of deferred tax assets are discussed, as are changes to the rules about use of tax losses. The problem is not just with interpretation and application of accounting standards in Japan, although we suggest that the position of auditors could be strengthened. This is a wider problem, the solution of which should be considered in Japan as part of financial, rather than accounting, reform.

THE CURRENT FRAMEWORK FOR JAPANESE ACCOUNTING

Three major laws determine financial accounting in Japan: the Commercial Code, the Securities and Exchange Law and the Corporate Income Tax Law (Hirose 1987; Arai and Shiratori, 1991; Arai, 1994; Sawa, 2003; JICPA, 2004; see also Kozuma, 1987). These three laws are closely related, centring on the Commercial Code and forming a so-called 'Triangular Legal System' in Japan (Arai and Shiratori, 1991; Arai, 1994; Sakurai, 2001; JICPA, 2004). The Corporate Income Tax Law has a 'significant influence' on financial reporting (Cooke, 1993, p. 471) because tax deductions are allowed for some expenses only if they are included in the financial statements prepared under the Commercial Code (Sakurai, 2001, p. 1724).

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[1] There are restrictions on what can be included as regulatory 'capital'. Details can be found in BIS (1988), paras 12–27, and BIS (2004), paras 37–43.

[2] Japan has not yet implemented the Basel II (2004) accord, so its regulations on capital adequacy ratios are those of the 1988 accord.

The Business Accounting Deliberation Council (BADC) is an advisory body of the Financial Services Agency (FSA), and formerly of the Ministry of Finance, and comprises members from a variety of backgrounds, such as industry, the accountancy profession, government and the universities (Hirose, 1987; Cooke, 1994). The BADC issued 'Business Accounting Principles' as well as opinions and standards, with which all companies in the scope of the Securities and Exchange Law must comply (Sawa, 2003, pp. 177–8). The BADC, as an advisory body to the Ministry of Finance, is regarded as a public sector body (Arai and Shiratori, 1991; Arai, 1994). Thus, Japanese accounting standards were, until 2001 (see below), mainly developed by the government rather than in the private sector. Accounting jurisdiction in Japan is regarded as largely statutory (Cooke, 1994; Sawa, 2003) and, in comparison with the Western accounting profession, the influence of the Japanese accounting profession on the economy as a whole is weak (Sakagami *et al.*, 1999, p. 342, citing Jinnai, 1990).

In 1996, the Japanese government announced that it would introduce financial deregulation by 2001 so that the Japanese financial market would operate according to market principles, and be more transparent and international in approach (Hashimoto, 1996; see also Sawa, 2003; Sakurai, 2001). New accounting standards were part of the financial reform, called 'the financial big bang' (Sakagami *et al.*, 1999, p. 341) or 'Accounting Big Bang' (Sawa, 2003, p. 193), which aimed to revitalize the financial markets and thereby facilitate recovery (Hashimoto, 1996; Ministry of Finance, 1997). The BADC had the aim of bringing Japanese accounting rules closer to internationally recognized standards and practices (Sawa, 2003, p. 178) and Kikuya notes that the BADC made 'every effort to acquire and harmonize its rules and regulations with IASs' (2001, p. 357). The new accounting standards were to be based, not on the traditional stewardship approach—with an emphasis on the characteristics of verifiability, objectivity, reliability and conservatism—but on the decision usefulness approach (Iwasaki, 2001), where the main purpose of accounting is to provide investors with useful information reflecting the performance of companies so that investors can take appropriate decisions.

In 2001, a private-sector standard-setting authority, the Financial Accounting Standards Foundation (FASF), was established by ten private-sector organizations, including the Japanese Institute of Certified Public Accountants (JICPA). Under the auspices of the FASF, the Accounting Standards Board of Japan is an 'independent and private-sector entity to develop accounting standards in Japan' (JICPA, 2004). The objective of this move was to transfer rule making in accounting from the public sector to the private sector and to assist further the convergence of Japanese accounting practice towards international practice (Nobes, 2004, p. 285; see also ASBJ, 2005).

Now, according to the JICPA, financial statements prepared in accordance with the current regulations 'contain few differences with IFRSs or US GAAP' (JICPA, 2004). This view is also held by the FSA, which reports that there are 'few differences between Japanese GAAP and IFRS, except for some relatively minor ones' (FSA, 19 April 2004, Part II). However, this is a very optimistic view compared to non-Japanese assessments (see Nobes, 2001; CESR, 2005).

BACKGROUND TO THE NON-PERFORMING (BAD) LOANS PROBLEM

Large Japanese companies invested heavily in plant and equipment in the boom period of the 1980s, which they financed with borrowing. Bond markets became accessible at that time and these large firms turned from banks to the capital market for their funding. The banks then looked to small and medium-size companies as new borrowers (Fukao, 2003). These smaller companies usually relied heavily on property as collateral. Figures reported in December 2004 by the Japan Real Estate Institute (with an index of 100 at March 2000) show that commercial property prices rose from 108.1 in March 1985 to 175.4 in March 1990, dropping back to 152.8 by March 1995 (refer to the 'Nationwide' Table). In the Tokyo Metropolitan Area, the changes were more pronounced, with the index for commercial property standing at 335.6 in March 1990, dropping back to 191.9 in March 1995 (refer to 'Tokyo Metropolitan Area' Table). Thus, with the collapse of the property market over this period, collateral had been reduced and many of the debts proved irrecoverable (Anderson and Campbell, 2000; Fukao, 2003).

Bad debt provisions are tax deductible only if they are within the limits set by the tax authorities (Sawa, 2003, p. 175) *and* included in the financial statements. To estimate provisions for doubtful debts, companies generally used the maximum amount permitted under tax law (Sakurai, 2001, p. 1748; see also Kozuma, 1987). The JICPA stated that this was acceptable (Sakurai, 2001, p. 1748). This may be larger than the amount regarded as fair in the U.K. and the U.S. (Nobes, 1993, 2004; Sawa, 2003, p. 175). Conversely, a larger amount might be more appropriate (Sawa, 2003, p. 175). Nobes (2004, p. 284), states that companies tend to choose an accounting practice that enables them 'to make the best of the tax benefit, rather than one that more accurately reflects their underlying economic reality', and, presumably, the 'financial performance' of the company. In the economic depression of the 1990s, it became clear that this practice, with respect to bad debts, often understated the figure for provisions; according to Fukao (2003, p. 370), when banks failed in the 1990s, it appeared that the bad loans were far larger than the amounts included in the financial statements.

A new accounting standard, introduced in 1999, changed how debts were evaluated (Sakurai, 2001). The new Japanese standard for bad debts stipulates that provisions are calculated with respect to the status of the debt: against 'normal' debts a 'reasonable percentage' is deducted based on history; the provision for 'unsafe' claims is based on an estimate of the collectible amount or discounted future cash flows; the provision for claims against companies in bankruptcy or reorganization is calculated by deducting the guaranteed amounts from the monetary value of the claims (Sawa, 2003, p. 188; see also Sakurai, 2001, pp. 1748–9). A more general discussion of accounting for loans is provided by Gray and Clarke (2004).

The Core Principles for Effective Banking Supervision (BIS, 1997) require both on-site and off-site supervision of banks (Principle 16), and there must be a means of independent validation of supervisory information either through on-site examinations or the use of external auditors (Principle 19). In Japan, this supervision is carried out by the Bank of Japan, which checks on the 'quality of assets' (Bank of

Japan, 2004a, p. 91). Documents relating to non-performing loans and provisions are analysed and the bank 'verifies the accuracy of financial institutions' self-assessment of assets and the adequacy of their loan-loss provisions and write-offs. It also assesses the possibility of an increase in 'non-performing loans' (p. 89). The *Annual Review* of the Bank of Japan for 2004 stated that the Bank had conducted on site examinations at 140 financial institutions (out of 565 with whom it had a contract to examine); these examinations include interviewing executives and staff, perusing ledgers and documents, and checking the management of risk by the institution (pp. 39–40).

'Increased accuracy' of asset assessment led to the recognition of additional non-performing (bad) loans (Cabinet Office, 2003, Section 2.1), so that, within the banking sector, the official estimate of bad loans at 31 March 2002 was ¥43,200bn (about U.S.$370bn), with the leading banks accounting for ¥28,400bn (FSA, 2 August 2002, Table 3). Gray and Clarke (2004, p. 321), commenting on worldwide practices with respect to banking, observe that the 'credit quality of the loan portfolio cannot be determined by objective criteria [so] the Allowance [for Loan Losses] has been shown potentially as a means to manage earnings'. This appears to be so in Japan. Despite the supervisory procedures outlined above and the new bad debt accounting standard, an additional ¥8,188bn of loans were directly written off between April 2002 and September 2004, with ¥5,174bn transferred to provisions, taking total losses to ¥95,057bn (FSA, 2005, Table 4). In addition, the official estimate of non-performing loans at 30 September 2004 was ¥23,800bn, with just ¥10,209bn in provisions for loan losses (FSA, 2005, Tables 2 and 4). Fukao states that, if banks were to write off all the bad loans 'most . . . would not be able to comply with the Bank for International Settlements (BIS) capital requirements' (2003, p. 373).

DEFERRED TAX ACCOUNTING IN JAPAN

There is a great deal of 'flexibility' (Sawa, 2003, p. 178) in accounting under the Commercial Code, Securities and Exchange Law and Business Accounting Principles; furthermore, historically business accounting and tax accounting were seen as the same (Goto, 1987, p. 61). Historically, there were few differences between taxable income and reporting profit, and, because there were few material timing differences, there was little need for deferred tax accounting (Sakurai, 2001, p. 1766).

This situation began to change when, in 1998, tax reform as part of the financial big bang resulted in corporation tax rates being lowered to approximately 40 per cent (Cabinet Office, 2002, Chapter 2) with the aim of being in line with international levels. To compensate for losses in tax revenues the corporate taxation base was expanded (Iwasaki, 2001, p. 46). This enlarged the separation between taxable income and reported profit, as did the new accounting standard on bad debts in 1999 (see above). In contrast with the subjective nature of accounting provisions, a tax deduction under Japanese Income Tax Law is more stringent and requires either a specified percentage deduction or for debts to have been 'abandoned' (Sakurai, 2001, pp. 1748, 1766).

The new standard for deferred tax accounting in Japan was issued by the BADC in October 1998, effective for fiscal years beginning on or after 1 April 1999. The content of the new standard is similar to International Accounting Standard 12 (IAS 12) (Sawa, 2003, p. 190) and the U.S. standard SFAS 109. These standards require the liability method, with deferred tax assets and liabilities being measured using the tax rate expected at settlement (BADC, 1998, Chapter 2:II:2; IAS 12, para. 47), based on enacted rates at the balance sheet date.

Differences that are subject to deferred tax accounting are taxable or deductible temporary differences (BADC, 1998, Chapter 2:I:3; IAS 12, paras 15 and 24) and the full provision basis is adopted. For deductible temporary differences arising at the balance sheet date, the associated deferred tax asset can be recognized as long as the reversal of temporary differences results in deductions in determining taxable income of future periods. However, economic benefits in the form of reductions in tax payments will flow to the enterprise only if it earns sufficient taxable income against which the deductions can be offset (BADC, 1998, Interpretive Note 5; IAS 12, para. 27).

The FSA states that deferred tax assets are recognized only to the extent that it is probable that taxable income will be available against which to deduct the temporary differences. Furthermore, the assets are reduced by a valuation allowance (impairment) if it is more likely than not that some or all of the asset will not be realized. Criteria such as 'sufficiency of taxable income based on earnings capacity are used in assessing the recoverability of deferred tax assets' (FSA, 19 April 2004, Supplemental Information).

While the wording of the standard differs from IAS 12, the FSA stated that the standards 'do not differ in substance' (FSA, 19 April 2004, Supplemental Information). Using the above examples, this appears to be the case. The remainder of this section deals with the corporation tax treatment and deferred tax effects of bad debt provisions and tax losses carried forward.

When directors of companies set up larger provisions for bad debts in their balance sheets than those allowed under the Corporate Income Tax Law, the excess is not immediately tax deductible. Since debts later written off are recognized in the calculation of taxable income, bad debt provisions in excess of those immediately allowed for tax are temporary differences, which give rise to deferred tax assets.

In the absence of taxable income in future periods, bad debts will create or augment tax losses. The Corporate Income Tax Law allows companies to carry over losses to the seven subsequent years (previously this was five years—see below) in order to offset and reduce taxable income (Ministry of Finance, 2004, pp. 29–30). Therefore, tax losses are deductions from future taxable income and are treated as giving rise to deferred tax assets (BADC, 1998, Chapter 2:I:4; Sakurai, 2001, pp. 1766–7). Apart from the requirement to generate sufficient future taxable income to offset the reversal of temporary differences, there is no time limit on deferred tax assets carried in the accounts for 'excess provisions'. When deferred tax assets also exist for tax losses carried forward, debts that are assessed as 'bad' will add to these losses. Since there is a seven-year limit on tax losses carried forward, the deferred tax assets created in respect of them will also expire after seven years. It is therefore better, when companies continue to make losses, for bad debt provisions not to be immediately tax deductible because this lengthens the period of carry forward.

The development of deferred tax accounting, introduced in the U.K. and the U.S. when taxable income was likely to be substantially less than reported profits, has been problematic (see, e.g., Hope and Briggs, 1982; Schultz and Johnson, 1998). The agreement of the revised form of IAS 12, on which the Japanese standard is based, was a 'drawn-out' process (Nobes, 2003, p. 28) with many objections and alterations on the way. The original standard allowed both the deferral and the liability method, while the revised standard requires the liability method; the original standard allowed partial provisions for deferred tax assets and liabilities, the revised standard requires full provisioning; the requirement for future taxable income to be 'beyond reasonable doubt' has been replaced with a requirement that future taxable income should probably be available (IAS 12, revised, Introduction). Nobes (2003, Chapter 4) criticizes the revised IAS 12 for being incompatible with the IASB's Framework.

Despite this background, deferred tax accounting in line with IAS 12 was introduced in Japan. The prolonged recession in Japan, together with changes in requirements for bad debt provisioning, resulted in the divergence of reported profits from taxable income, so that taxable income was substantially *more* than reported profits. The partial provision method for deferred tax has been rejected because it involves subjective estimates of future capital acquisitions (see, e.g., the discussion in the U.K.'s FRS19, para. 15), yet the requirement to recognize deferred tax assets necessitates the equally subjective assessment of future earnings, which is very difficult to challenge.

Thus, deferred tax accounting, developed in tax systems completely different from that in Japan, has led to the recognition of substantial deferred tax assets in the balance sheets of Japanese companies.

EFFECTS OF THE JAPANESE DEFERRED TAX STANDARD

Extensive restructuring in the banking sector was performed in order to overcome the financial crises emerging in the 1990s.[3] After this, the five largest banking groups in Japan in 2002 were as shown in Table 1. Together these include ten of the twelve largest individual banks (Cabinet Office, 2003, Figure 2-2-7). These five groups have been selected for study in order to examine the extent of deferred tax in the accounts of Japanese banks.

In order to address the first research question concerning the importance of deferred tax assets from 2002 to 2004, we have provided a breakdown of net recognized deferred tax assets in the three years ending 31 March 2004 for these groups (Table 2). The amounts of deferred tax recognized in respect of bad debts and losses carried forward are shown separately, as well as the amount of the valuation allowance (impairment).

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[3] This restructuring continues with a proposed merger between MTFG and UFJ Holdings approved by shareholders in June 2005.

TABLE 1

THE FIVE LARGEST JAPANESE BANKING GROUPS AT 31 MARCH 2002 AND THEIR COMPONENTS

Size order	Group at 31 March 2002	Major banking components
1	Mizuho Financial Group (MHFG)	Mizuho Bank, Mizuho Corporate Bank, Mizuho Trust and Banking
2	Sumitomo Mitsui Financial Group (SMFG)	Sumitomo Mitsui Banking Corporation
3	Mitsubishi Tokyo Financial Group (MTFG)	Bank of Tokyo Mitsubishi, Mitsubishi Trust and Banking Corporation
4	UFJ Holdings	UFJ Bank, UFJ Trust Bank
5	Resona Holdings	Resona Bank, Saitama Resona Bank

All the banking groups recognized significant gross deferred tax assets during the period, with increases in the balances between 2002 and 2004 for all groups except MTFG. The increases in gross deferred tax assets are mitigated by increases in the valuation allowance during the same period.

Even so, the net deferred tax assets at the end of 2004 are substantial for all the groups except Resona Holdings. Resona is considered later as a special case. At 31 March 2004, MHFG has gross deferred tax assets of ¥3,794.8bn, although there is a valuation allowance of ¥2,461.8bn. SMFG has a balance of ¥2,107.5bn at the end of 2004, but the total valuation allowance is just ¥441.1bn. A similar situation exists for MTFG, which has gross deferred tax assets of ¥745.9bn, with a valuation allowance of ¥90.4bn. UFJ Holdings has gross deferred tax assets of ¥2,150.9bn, with a valuation allowance of ¥755.1bn. Resona Holdings, in contrast, has net deferred tax assets of only ¥52.6bn, because the valuation allowance almost equals the gross assets.

Since the calculation of taxable income starts with reported profits, the trend in reported profits is of interest.[4] This analysis reveals (with respect to the third research question) one of the problems of deferred tax accounting, which is the need to anticipate future taxable income sufficient to justify the recognition of deferred tax assets. Table 3 shows the reported pre-tax profits or losses for the major groups for the three years ending 31 March 2004. Most of the groups report substantial losses, including all five groups in 2002 and 2003. All the banking groups except MTFG have cumulative losses for the three-year period, although in 2004 three of the groups made pre-tax profits, showing some turnaround in performance. .

As evidenced by the amount of net deferred tax assets recognized, all of the groups except Resona imply, or directly state, that they anticipate significant taxable income

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[4] Reported profit will later be used as a proxy for taxable income (before reversals of temporary differences) for MHFG, SMFG, MTFG and UFJ. This is reasonable as the annual reports for 2004 show that the difference between the statutory and effective tax rates is not mainly due to 'permanent' differences.

Table 2

BREAKDOWN OF DEFERRED TAX ASSETS FOR YEARS ENDING 31 MARCH 2002–04

	2002 ¥bn	2003 ¥bn	2004 ¥bn
MHFG			
Loan losses	1,301.2	1,026.6	805.8
Tax loss carry forwards	805.0	2,257.9	2,088.2
Other	720.9	651.1	900.8
Valuation allowance	(333.7)	(1,809.6)	(2,461.8)
Total net deferred tax assets	2,493.4	2,126.0	1,333.0
SMFG			
Loan losses	1,276.2	1,276.8	836.2
Tax loss carry forwards	127.3	451.4	1,030.9
Other	550.2	724.1	240.4
Valuation allowance	(110.4)	(540.1)	(441.1)
Total net deferred tax assets	1,843.3	1,912.2	1,666.4
MTFG[a]			
Loan losses	757.0	532.1	353.8
Tax loss carry forwards	76.8	767.9	662.8
Other	151.3	203.3	(270.7)
Valuation allowance	—	(201.5)	(90.4)
Total net deferred tax assets	985.1	1,301.8	655.5
UFJ Holdings			
Loan losses	1,087.1	985.7	1,228.1
Tax loss carry forwards	164.1	912.4	820.5
Other	561.2	316.2	102.3
Valuation allowance	(356.1)	(692.0)	(755.1)
Total net deferred tax assets	1,456.3	1,522.3	1,395.8
Resona Holdings			
Loan losses	602.7	597.5	598.2
Tax loss carry forwards	292.1	784.7	1,336.8
Other	251.5	323.9	988.8
Valuation allowance	(314.1)	(1,183.7)	(2,871.2)
Total net deferred tax assets	832.2	522.4	52.6

Source: Annual reports and financial statements sections of bank websites.

[a] Figures for MTFG deferred tax with respect to loan losses, tax losses carried forward and valuation allowance are for the two banking subsidiaries. The valuation allowance is not disclosed separately for 2002 and is assumed to be minimal as deferred tax in relation to tax losses carried forward is not significant.

in the future to absorb the reversals of temporary differences and tax losses carried forward. For example, in the accounts of SMFG for 2004, the future taxable income of SMBC (the principal subsidiary) is estimated at ¥4,256.9bn over the next five years, justifying a deferred tax asset of ¥1,729.6bn using an effective tax

TABLE 3

PRE-TAX PROFIT/(LOSS) FOR YEARS ENDING 31 MARCH 2002–04

	2002 ¥bn	2003 ¥bn	2004 ¥bn	Cumulative profits/(losses) 2002–04 ¥bn
MHFG	(1,425.2)	(2,262.2)	881.2	(2,806.2)
SMFG[a]	(604.3)	(590.9)	404.9	(790.3)
MTFG	(297.1)	(340.7)	879.9	242.1
UFJ Holdings	(1,638.4)	(618.9)	(331.7)	(2,589.0)
Resona Holdings	(1,173.8)	(524.2)	(1,293.9)	(2,991.9)

Source: Annual reports and financial statements sections of bank websites.
[a] Figures for 2002 are those of the former SMBC.

rate of 40.63 per cent (p. 20). This estimate of future taxable income is stated by the directors to be 'conservatively estimated' by 'rationally [making] earnings projections for up to fiscal 2008' and reducing these amounts by an amount 'reflecting the uncertainty of the projected amount' (p. 20). While not explicitly calculated in the reports of the other groups, this is the only basis on which the deferred tax assets may be recognized based on the Japanese standard and subsequent FSA clarification (as discussed above).

SMFG and UFJ Holdings need the largest turnaround in performance, as evidenced by the assets recognized in their accounts compared with current performance. Assuming an approximate tax rate of 40 per cent, the taxable income required by SMFG to absorb the temporary differences and tax losses carried forward (giving rise to the net deferred tax asset of ¥1,666.4bn) is ¥4,166bn, or ten times the reported profit in 2004. It is beneficial to SMFG that bad debt provisions are not immediately tax deductible, since, if the group continued to report losses, it is likely that increases in provisions would result in tax losses carried forward, which would in time expire, taking their associated deferred tax asset with them.

For UFJ Holdings, the required profits to absorb the temporary differences and tax losses carried forward (that give rise to the deferred tax asset of ¥1,395.8bn at 31 March 2004) are ¥3,490bn; whereas UFJ Holdings reported a loss of ¥331.7bn in 2004. The deferred tax for loan losses in UFJ Holdings is ¥1,228.1bn, equivalent to temporary differences of approximately ¥3,070bn (using an approximate tax rate of 40 per cent). As with SMFG, it is advantageous that bad debt provisions are not immediately tax deductible.

Thus, for SMFG and UFJ Holdings, sufficient taxable income in the next seven years to absorb the temporary differences that give rise to deferred tax assets appears unlikely if current performance continues. On the same basis, MTFG requires future taxable income equivalent to twice the reported profit in 2004, and MHFG requires four years of profits at the same amount as 2004 to absorb the reversals of the temporary differences and tax losses carried forward. That sufficient taxable income

TABLE 4

REPORTED CAPITAL ADEQAUCY RATIOS FOR YEARS ENDING 31 MARCH 2002–04

Banking groups	MHFG	SMFG	MTFG	UFJ Holdings	Resona Holdings
31 March 2002	10.56%	10.45%	10.30%	11.04%	8.73%
31 March 2003	9.53%	10.10%	10.84%	9.96%	3.78%
31 March 2004	11.35%	11.37%	12.95%	9.24%	7.74%

Source: Annual reports sections of bank websites.

is generated to absorb the temporary differences that give rise to deferred tax assets appears more likely for these two groups if current performance continues.

EFFECTS OF DEFERRED TAX ACCOUNTING ON CAPITAL ADEQAUCY

According to their annual reports, all five banking groups met the BIS capital adequacy requirement of 8 per cent as at 31 March 2002, and (for all but Resona) for the two years after that. As Table 4 shows, between 2002 and 2004, three of the banking groups (MHFG, SMFG and MTFG) show increases in capital adequacy ratios, and two (UFJ Holdings and Resona Holdings) show decreases in the ratios.[5]

This ability to meet the international capital adequacy requirement is due in part to the inclusion of deferred tax assets[6] in the balance sheets of the groups. Retained earnings (which form part of the banks' Tier 1 capital) are higher than if these assets had been fully written off. *Nihon Keizai Shimbun* (13 June 2003) reports that deferred tax assets contribute up to 70 per cent of the equity capital of eleven major banks, while the Cabinet Office of Japan reports that 51.7 per cent of the Tier 1 core capital for the major banks in 2002 existed as a result of deferred tax assets (Cabinet Office, 2003, Figure 2-2-7).

Table 5 summarizes the position for the five banking groups by showing the percentage of net deferred tax assets to capital for each of the years 31 March 2002–04. Since a net figure for deferred tax[7] is used, the percentages are lower than those often reported in the financial press.

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[5] The BIS capital adequacy ratio is calculated as Total Qualifying Capital/Risk Weighted Assets and expressed as a percentage. Low risk assets are given a lower weighting than high risk assets, thus require less capital to be maintained by the bank. An example of the calculation can be seen in the MTFG annual report for 2004 (p. 95, English version). Total qualifying capital, consisting of Tier 1, Tier 2 and Tier 3 capital less a minor deduction, is ¥6,992.8bn and risk weighted assets are ¥53,996.8bn, giving a capital adequacy ratio of 12.95 per cent. Similar calculations can be found in the 2004 annual reports of UFJ Holdings (p. 30), MHFG (p. 61), SMFG (p. 15) and Resona Holdings (p. 65). Note that Japanese GAAP figures are used to calculate the ratios.

[6] The major banks operating internationally also kept their capital adequacy ratios above 8 per cent by issuing preferred stocks to investors (Steed and Hashimoto, 2003). MHFG raised ¥1,082bn in the year ended 31 March 2003.

[7] After deducting deferred tax liabilities, but excluding deferred tax assets and liabilities on land revaluations.

TABLE 5

NET DEFERRED TAX ASSETS AS A PERCENTAGE OF TIER 1 CAPITAL AND TOTAL QUALIFYING CAPITAL[a] FOR YEARS ENDING 31 MARCH 2002–04

	2002[b]	2003	2004
MHFG			
As % of Tier 1 capital	49.58	60.82	33.82
As % of total qualifying capital	25.04	31.05	17.16
SMFG[c]			
As % of Tier 1 capital	49.56	58.73	46.66
As % of total qualifying capital	26.11	31.98	24.73
MTFG			
As % of Tier 1 capital	30.97	41.61	16.99
As % of total qualifying capital	15.84	21.81	9.37
UFJ Holdings			
As % of Tier 1 capital	49.24	59.46	64.17
As % of total qualifying capital	25.73	32.97	32.70
Resona Holdings			
As % of Tier 1 capital	65.78	99.41	5.86
As % of total qualifying capital	33.06	50.35	2.97

Source: Calculated from annual reports and financial statements.

[a] The total qualifying capital is that used in the BIS capital adequacy ratio.

[b] 2002 results are for MHHD (Mizuho Holdings Inc.), which is now an intermediate holding company.

[c] Figures for 2002 are those of the former SMBC.

Between 2002 and 2003, net deferred tax as a percentage of both Tier 1 capital and total qualifying capital increased for all the banking groups. For Resona, the percentage of net deferred tax assets to Tier 1 capital was above 99 per cent in 2003; for all other banking groups the percentage was above 40 per cent in that year. The average net deferred tax as a percentage of Tier 1 capital in 2004 was 34 per cent for all five banking groups, and 40 per cent excluding Resona. As a comparison with these figures, the U.S. regulations for banks limit to 10 per cent, or to that realizable within the next year, whichever is the lower, the amount of deferred tax assets (realizable only against future taxable income) that may be included in the calculation of Tier 1 capital (FDIC, 1995, p. 8182).

In order to address the second research question concerning the importance of deferred tax assets in the context of regulatory capital, we have deducted net deferred tax from capital and then calculated the effect on the capital adequacy ratio. That Japanese banking groups rely on deferred tax assets in order to maintain their capital to the levels required for international operation can be clearly seen. Table 6 shows the capital adequacy ratios for 2002–04, after reducing both Tier 1 and Tier 2 capital to assess the effect of eliminating net deferred tax assets from the balance sheet. The adjustment to Tier 2 capital is necessary because BIS

TABLE 6

CAPITAL ADEQUACY RATIO WITHOUT DEFERRED TAX FOR YEARS ENDING 31 MARCH 2002–04

	MHFG	SMFG	MTFG	UFJ Holdings	Resona Holdings
31 March 2002	5.27%	5.31%	7.10%	5.65 %	2.96%
31 March 2003	3.61%	4.14%	6.62%	4.33%	−0.03%
31 March 2004	7.46%	6.01%	11.74%	3.20%	7.34%

regulations (BIS, 1988, para. 14; 2004, para. 40) mean that Tier 2 capital cannot exceed Tier 1 capital. If Tier 1 capital is reduced to eliminate deferred tax assets, in many cases Tier 2 capital must also reduce.

The lowest ratios are in 2003, with capital adequacy (calculated on this basis) for all banking groups not exceeding 6.7 per cent, with an average, excluding Resona, of 4.7 per cent. With the exception of MTFG in 2004, the capital adequacy ratio of all the banking groups in these three years is below the 8 per cent required for international operations. Thus, in these three years, all the major Japanese banking groups depended on their deferred tax assets to retain their status in the international market. The 2004 figures show an average capital adequacy (calculated on this basis) of 7.2 per cent for all five banking groups, 7.1 per cent excluding Resona.

RECENT DEVELOPMENTS IN THE JAPANESE BANKING SECTOR

A study of Resona Bank illustrates the potential seriousness of this problem, and explains some of the differences in its results (see Tables 2, 4, 5 and 6) from 2003 to 2004 and in comparison with the other four banking groups. The case of another, smaller, bank (Ashikaga) is also presented to show that the problems may be wider than just these five banking groups.

Resona and Ashikaga Banks

Resona Holdings, the fifth largest Japanese banking group, reported in May 2003 that its capital adequacy ratio had fallen to around 3 per cent (Resona, 17 May 2003, p. 3; also see Table 4). The capital adequacy ratio of Resona Bank Ltd had also fallen from its previously forecast level of 6 per cent to 2 per cent (Resona, 17 May 2003, p. 3; see also *Economist*, 2003; Pilling, 2003; Resona Holdings Annual Report, 2003, p. 81). This is half the required minimum of 4 per cent for domestic banks, and one quarter of the minimum of 8 per cent for international operations. The financial statements for Resona Holdings had included large deferred tax assets as part of capital and these assets accounted for 70 per cent of Tier 1 capital, according to Moody's Investor Services (Ibison, 19 May 2003; see also *Economist*, 2003, and Table 3). Table 5 shows the amounts calculated in this paper for Resona Holdings. In late April, one of Resona's two auditors, Asahi & Co., disputed the bank's profit forecasts (on which the deferred tax assets depend) and resigned. The other auditor, Shin Nihon, Japan's largest accounting firm, refused to give a clean audit report unless Resona cut its deferred tax assets by 40 per cent. The ex-president emphasized that it was totally unexpected that the auditors would dispute its figures (*Nihon Keizai Shimbun*, 11 June 2003). Public money of ¥2 trillion was injected into Resona in order to prevent its collapse.

Ashikaga, a relatively small regional bank operating mainly in Northern Japan, reported in November 2003 that it had insufficient assets to pay outstanding debts (Ibison, 22 November 2003). The ratio of deferred tax assets to Tier 1 capital was 186 per cent at 31 March 2003 and the capital adequacy ratio, reported as 4.5 per cent at March 2003, had declined to –3.7 per cent by 29 November, with a capital deficit of ¥102.3bn. Public money of ¥105bn was injected into Ashikaga Financial Group in the form of preferred shares and the bank was nationalized (Minister for Financial Services, 2003).

RESPONSES TO THE PROBLEMS

Auditors acted on the accounts of Resona Holdings and the government provided capital to prevent the collapse of the bank. Steed and Hashimoto observe that auditors now appear to be 'more stringent' in their assessment of their clients' financial statements (2003, p. 28). A survey carried out by *Nihon Keizai Shimbun* showed that 68 per cent of the audit firms said that they practised stricter inspection at the fiscal year ended in March 2003 than before, and 80 per cent of them replied that they had made the assessment of deferred tax assets more stringent (20 June 2003). Table 2 shows an increase in the gross deferred tax assets for MHFG, SMFG and UFJ from 2002 to 2004. Over the same period, there has been a greater increase in the valuation allowances in these three groups, and thus a decline in net deferred tax assets. This change in net deferred tax assets is similar to that in the accounts of Resona, but not nearly as extensive. This evidence appears to support at least a start by directors and auditors to tackling the deferred tax problem.

Measures have been proposed and some implemented by the government and regulatory agencies to address the general problems in the banking sector, including: extending provisions for the protection of investors, dealing with the bad loan problems directly, dealing with the recognition of deferred tax assets on loans and associated tax losses, and tax changes that would mitigate the effects of writing off bad loans and deferred tax assets. These are now examined in turn.

In 1971, the government passed the Deposit Insurance Law to establish an insurance system to protect depositors and to maintain an 'orderly financial system' (Deposit Insurance Law, Article 1). In 1986, this system was amended with the creation of the Deposit Insurance Corporation of Japan (DICJ), whose scope of operations included providing financial assistance to failing banks and making payments up to ¥10 million per depositor in the case of failure (Article 34). In the light of a series of bank failures from 1994 to 1996, the limit of ¥10 million per depositor was removed temporarily from April 1996 until March 2001, and this arrangement extended until the end of March 2002. From April 2002, a transitional arrangement existed so that deposits such as current deposits and ordinary deposits were covered without limit, while other deposits were once again subject to a limit of ¥10 million. At that time it was proposed that, from April 2003, the limit of ¥10 million would once again apply to all deposits (Ministry of Finance, 2000; DICJ, 2002, p. 2). However, the time limit for protection of current and ordinary deposits was extended once again to the end of March 2005 with full protection retained after that date for deposits meeting specific conditions, for example, non-interest bearing (DICJ, 2003, p. 10).

As well as protecting investors, the government also took steps to address the problems of bad loans more directly. In 2001, Junichiro Koizumi was inaugurated as Prime Minister and vowed in his policy speech on 7 May that the government would address the problem of bad loans within two to three years. Implementation of the Emergency Economic Package, which required 'drastic removal of non-performing loans from the banks' balance sheets', would be one of the first tasks of his cabinet (Koizumi, 2001). He appointed Heizo Takenaka, an academic known as a reformer, on 30 September 2002 as both the head of the Financial Services Agency and as the Minister of Economic and Fiscal Policy (Steed and Hashimoto, 2003, p. 26). Koizumi stated that the government together with the Bank of Japan aimed 'to conclude the disposal of non-performing loans in FY2004' (Koizumi, 2002, point 2).

The government also intended to adopt stricter criteria for the use of deferred tax assets and Takenaka suggested that the percentage of Tier 1 capital attributable to deferred tax assets should be limited to 10 per cent by 31 March 2004 (Steed and Hashimoto, 2003, p. 26); this would bring Japan in line with the U.S., as mentioned above. However, the banking industry as well as members of the ruling party strongly resisted Takenaka's initiatives. Banks and their borrowers are a major source of political support (*Economist*, 2002), and limitations on the use of deferred tax assets did not appear in the Program for Financial Revival released in October 2002 (refer to FSA, October 2002); Takenaka's final policy recommendations were 'much softer on banks than his initial statements suggested' (Steed and Hashimoto, 2003, p. 27).

However, Takenaka still had the goal of dealing with bad loans and set up a taskforce within the FSA to monitor bad debt disposals at the banks (Nakamoto, 2002). The FSA continued to discuss whether to limit banks' use of deferred tax assets as capital and whether new rules would be needed to make it easier to inject public funds into banks. Without such injections, capital adequacy ratios would fall should limitations be placed on the use of deferred tax assets (see Table 6 above). In June 2004, the FSA released the report of a working group, which indicated that the regulatory treatment of deferred tax assets would be modified after the banks had achieved their objective of reducing non-performing loans to a specified level, expected to be March 2005. However, the report concluded that concrete measures were to be left to 'the supervisory authority . . . [to] further examine and make a decision based on this report' (FSA, 22 June 2004, point 5).

In 2002, the FSA had also proposed a new tax measure to enable bad debt provisions (under the supervision and inspection of the FSA) to be recognized as tax losses, the end of the freeze on carry back of tax losses, and an extension of the period for carry back, as well as the removal of the five-year carry forward limit for tax losses (FSA, 30 October 2002, point 3(2)). However, in 2003 the tax law was unchanged with a one-year carry back for losses (restricted to certain small and medium sized companies), and a five-year carry forward (Ministry of Finance, 2003a, p. 102). At that time, the Ministry observed that, given that many financial institutions are 'in the red', increased tax deductions for bad debts would not reduce the deferred tax assets, since they would merely increase the tax losses carried forward (Ministry of Finance, 2003b). The Ministry also rejected extensions to loss carry forward and carry back for financial institutions only, since this would not be equitable when compared to the treatment of non-financial institutions. Also, in the case of loss carry back they stated that such a measure would amount to nothing more than an injection of public funds (since tax could be reclaimed), and the necessity for injection of public funds should be considered directly rather than through tax refunds. However, in March 2004, the time limit for carry forward of losses was increased from five to seven years and the limit was applied retroactively for years beginning on or after 1 April 2001. No changes were made to the one-year limit for tax losses carried back, and the freeze on carry back of losses for all but certain small and medium-sized companies was extended from 31 March 2004 until 31 March 2006 (Ministry of Finance, 2004, pp. 29–30; PriceWaterhouseCoopers Hong Kong, 2004, pp. 29–33). Given the limits on carry back and carry forward of tax losses, the failure to extend tax deductibility of bad debt provisions is to the advantage of companies that continue to make losses.

DISCUSSION AND CONCLUSION

There have long been international influences on Japanese Accounting Standards, including the 1890 Commercial Code modelled on the German Code (Cooke, 1994, p. 52), and the 1949 Business Accounting Principles that were modelled on U.S. principles (Kikuya, 2001, p. 354), and now there are moves to harmonize Japanese accounting with international accounting standards (ASBJ, 2005). However, the accounting conventions and customs, and the economic, social and cultural environments of Japan have, according to Kikuya, 'hindered the international harmonization of accounting standards' (2001, p. 367). The move from an accounting system in Japan that emphasized stewardship (Iwasaki, 2001) to one based on IASs that emphasizes relevance or usefulness to investors, timeliness and comparability (Arai, 1994) would always have been problematic.

Deferred tax accounting, introduced in the U.S. when there were large differences between taxable income and reported profits, led primarily to the recognition of deferred tax liabilities. Accounting for deferred taxes has had a troubled history everywhere, and it is probably unfair to conclude that harmonization is generally undesirable on the basis of the evidence presented in this article. However, the (possibly unanticipated) outcome of adopting the IAS 12 requirement for full provisioning for deferred tax is that, in Japan, there existed a situation where tax deductions for bad debt provisions were substantially less than those recognized in the accounts, thus resulting in large deferred tax assets. Notwithstanding the requirement to provide valuation allowances against deferred tax assets, Japanese banks recognized substantial assets, without which the BIS requirement for 8 per cent capital would not have been met. With respect to our first two research questions we find that deferred tax accounting was important to the banking sector, especially to maintain regulatory capital and thus international operations.

We turn now to our third research question, that of the problems revealed with respect to deferred tax accounting. Accounting standards introduced in Japan from the end of the 1990s are similar to internationally recognized accounting standards and are part of the convergence toward such standards. Compared with IAS 12, there are no significant differences in the Japanese standard for deferred tax, so it appears that differences in the requirements of the standard are not the reason for the situation that has arisen in Japanese banks. However, the assessment of the extent of future profits is a difficult task, and it may be impossible for the banks' auditors, acting alone, to check directors' assumptions about the recoverability of deferred tax assets against future taxable income. Similar arguments were put forward by the U.K.'s Accounting Standards Board in its rejection of the partial provision method of accounting for deferred tax, which it said relied on 'anticipation of future events [that were] subjective and inconsistent with the principles underlying other aspects of accounting' (FRS 19, Appendix V, para. 14).

We have already considered, in relation to our fourth research question, the responses of government, regulatory agencies and the auditing profession. We now comment on the policy implications of our findings.

The connection between government and financial institutions as well as specific companies has made it difficult to promote transparent financial statements in Japan. The role of a private sector standard-setter, which was established in 2001, may be important in the future. The Ministry of Economy, Trade and Industry regards this body as established in order to enhance independence in rule-setting and, furthermore, so that 'Japan can contribute to the development of the international accounting system' (2002: I.1(4)).

Until recently, the Ministry of Finance (MoF) operated what was known as the 'convoy system', where stronger banks were required to help those which were weaker. Furthermore, the MoF and large banks had an arrangement whereby the banks would offer cheap loans to the MoF's preferred firms and, in return, the MoF would 'tacitly agree to bail out the banks in troubled times' (Anderson and Campbell, 2000, pp. 199–200). Although the FSA, rather than the MoF, now oversees banks the government appears reluctant to act against banks, making the job of auditors more difficult. Thus, auditors have been reluctant to challenge banks. In addition, Japanese accountants are 'notoriously chummy' with their clients (*Economist*, 2003, p. 73). Japanese disclosure has traditionally been limited since management faced little pressure from outside to provide transparent financial statements. Thus, part of the reason for the inclusion of possibly unrealizable deferred tax assets in accounts may lie in the relationships between government, banking groups and auditors.

The authority of auditors could be strengthened. The refusal of Shin Nihon, Resona's auditors, to give a clean audit report has raised expectations about the future role of Japan's big four accounting firms and its action is expected to set a precedent for the rest of the industry (Nakamoto, 2003). The current performance of MHFG and UFJ suggests that the gross deferred tax assets should be reduced further by valuation allowances, perhaps to the extent of the changes made to the accounts of Resona. As part of strengthening the position of auditors, the FSA could act to introduce a cap, similar to that applied to U.S. banks, on the amount of deferred tax assets that banks are able to count as regulatory capital; this has already been considered but not implemented. This action would not solve the problem of whether these assets are accounted for correctly; even the U.S. banking regulations discussed above pertain only to the calculation of regulatory capital.

The government might also act by considering the problem of deferred tax assets as part of a wider financial reform rather than as just an accounting matter. Stricter treatment of deferred tax assets could be tempered with more lenient tax treatment of tax losses already established, so that losses might be carried back or forward without limit, thus limiting the likelihood of banks' insolvency. This would require further reconsideration of their position by the Ministry of Finance, which has taken steps in this direction by extending the loss carry forward period from five to seven years.

Tackling the problem of deferred tax accounting by imposing stricter conditions on the recognition of deferred tax assets in the financial statements, rather than just in relation to the calculation of regulatory capital, might cause a number of bankruptcies of large Japanese banks. This would have serious implications for the entire financial system and the wider economic system. The implementation of the Basel II Accord will also play a part in the future of Japanese banking. One of the objectives of the new Basel II Accord is that the capital requirements will be broadly neutral compared with those of the original accord (BIS, 2001, p. 5). Concerns were raised about this assumption of neutrality with respect to the potential effects of Basel II on capital requirements in Japan (Japanese Bankers Association, 2001; Japan Center for International Finance, 2001). After a field study, in which a number of Japanese banks participated, BIS stated that, overall, there will be no increase in the capital required by large, internationally active banks to meet the new requirements (BIS, 2003, p. 3). This is a complex area, and speculation about the effects is outside the scope of this article. However, the effects of Basel II on the capital adequacy ratios of Japanese banks remains to be seen and future quantitative studies will be interesting.

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Equity Accounting Adoption in Regulated and Unregulated Settings: An Empirical Study

This article examines equity accounting adoption by Australian companies before and after standard AAS 14 (1984), the first standard on equity accounting in Australia. To bypass a legal constraint, AAS 14 and its successor ASRB 1016 (1989) required that equity accounting of associates appear in supplementary disclosures (third-column or footnote) and not in consolidated accounts. Before AAS 14, extensive voluntary adoption of equity accounting occurred in consolidated accounts. Equity accounting adopters from 1971 to 1989 were matched in their adoption years with companies that could have used equity accounting but did not. Throughout, equity accounting adopters' EPS tended to be declining and equity accounting adoption tended to increase reported earnings. After AAS 14, adopters showed equity accounting via a third column if it increased reported earnings but in footnote disclosures if it reduced reported earnings. Leverage is associated with adoption before but not after AAS 14, perhaps because the standards required equity accounting in supplementary disclosures which had no impact on borrowing constraints, while no such restriction on equity accounting existed before regulation. Pre-AAS14 adopters tended not to be audited by large audit firms. Adopters after AAS 14 had higher ratios of investments in associates to total tangible assets; before AAS 14 they did not. The results are consistent with equity accounting being adopted opportunistically; there is limited evidence to support contractual efficiency motives.

Key words: Accounting; Accounting standards; Contractual efficiency; Equity method; Opportunistic behaviour; Regulation.

This article investigates equity accounting adoption in regulated and unregulated settings. Equity accounting[1] is a controversial accounting method. As Nobes (2002) recently pointed out, the method is conceptually flawed; yet it has survived

[1] The article is restricted to equity accounting of investments in associates, even though the method has also been applied to incorporated joint ventures. Associates are investees over which an investor has significant influence but not control. An equity holding between 20 per cent and 50 per cent in the investee usually indicates significant influence, although other factors are also relevant.

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across countries and across time. In Australia, equity accounting certainly has had a chequered history (Gordon & Morris 1996; Valley *et al.*, 1997). An unusual legal constraint led to the early Australian equity accounting standards requiring that the method be shown in supplementary disclosures either in a third column adjacent to the main accounts or in a footnote and not, as was usual in other countries, recognized in consolidated accounts. Despite the legal constraint, equity accounting was adopted voluntarily in consolidated accounts before these standards were issued and non-compliance with the early equity accounting standards was common. Financial commentators alleged that some Australian firms used equity accounting to creatively boost their reported earnings (Sykes, 1988 p. 498; 1994, p. 435; Bosch, 1990, p. 123; Walker, 1990, p. 10). Therefore, examining the determinants of equity accounting adoption in Australia before and after regulation is of interest. Below, equity accounting ***adoption*** means (a) recognition in consolidated accounts before regulation and (b) supplementary disclosures after regulation.

Previous empirical research on equity accounting has examined (a) the representation of investor firms on associates' boards (Gniewosz, 1980), (b) whether equity accounting contributes to investors' loan repaying ability (Wilkins and Zimmer, 1985), (c) whether investors' holdings in investees are influenced by the bright-line threshold for applying equity accounting (Comiskey and Mulford, 1986), (d) the economic determinants of equity accounting in Australia immediately after release of accounting standards thereon (Mazay *et al.*, 1993; Zimmer, 1994), (e) equity accounting's value relevance (Ricks and Hughes, 1985; Tutticci, 2002; Graham *et al.*, 2003), (f) equity accounting's risk relevance (Kothavala, 2003) and its predictive ability (Graham *et al.*, 2003), (g) whether the market prices of off-balance-sheet obligations are concealed by equity accounting (Bauman, 2003), and (h) the determinants of equity accounting usage in Norway (Bohren *et al.*, 2004; Bohren and Haug, forthcoming).

Our work adds to the literature in the following ways. First, positive accounting theory (Watts and Zimmerman, 1986, 1990) suggests accounting policy choices are determined primarily by contracting efficiency and opportunism.[2] However, the two concepts are difficult to distinguish empirically. Either or both may operate in a particular setting. Christie and Zimmerman (1994) claim that contracting efficiency predominates, and results in Australian studies of equity accounting (Mazay *et al.*, 1993; Zimmer, 1994) support that claim. On the other hand Australian financial commentators suggest that equity accounting has been used opportunistically, as noted. Evidence here suggests support for the opportunistic story.

Second, the literature on earnings management[3] is augmented by investigating whether equity accounting adoption is used to manage reported earnings upwards.

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[2] In theory, they also can be influenced by the wish to provide information to outsiders (Holthausen, 1990), for example, signals of future cash flows. We do not examine this motivation. In a study of equity accounting usage in Norway, Bohren and Haug (forthcoming) show that the information provision motivation is much less important than opportunistic incentives.

[3] Healy and Wahlen (1999, p. 368) stated that earnings management 'occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers'.

A recent review by Healy and Wahlen (1999, p. 380) called for more research on the earnings management effects of specific accruals. Equity accounting can be viewed as an accrual process (Eddey *et al.*, 2001, p. 406).

Third, the study has two strong methodological features. First, each equity accounting adopter is examined in its adoption year, thus permitting a sharp focus on factors driving the adoption decision. Economic factors, especially opportunistic ones, influencing accounting choice are likely to be at their peak on adoption. Mazay *et al.* (1993) and Zimmer (1994) both examined equity accounting usage cross-sectionally in the first operative year of early Australian equity accounting standards amongst a mixture of first-time and longer term users of the method. Accounting policies, once adopted, tend to remain in place for some years, because accounting standards discourage frequent policy changes.[4] Not all factors influencing *adoption* of an accounting method may operate in later years, so a single-year cross-sectional design is unlikely to capture every factor influencing adoptions.

The second methodological feature is that equity accounting adoption is examined in regulated *and* unregulated settings. Mazay *et al.* (1993) and Zimmer (1994) examined equity accounting in a regulated environment, so their findings are likely influenced by those regulations. Studying equity accounting adoption in regulated and unregulated settings yields more powerful insights.

As noted, our findings suggest that, contrary to Mazay *et al.* (1993) and Zimmer (1994), opportunism rather then contracting efficiency predominates in equity accounting adoption and adoption mode in Australia. Consistent with opportunism, equity accounting adoption pre- and post-regulation tends to boost earnings. Post regulation, equity accounting is disclosed more prominently (i.e., it is reported in the accounts) if it boosts earnings and less prominently (i.e., it is only disclosed) if it does not. Leverage is associated with adoption before but not after regulation, perhaps because the standards required equity accounting in supplementary disclosures which had no impact on borrowing constraints, while no such restriction on equity accounting existed before regulation. Investments in associates are greater for adopters than for non-adopters after, but not before, regulation. If this variable captured contracting efficiency it would be significant before *and* after regulation but it is not.

REGULATORY BACKGROUND

The regulatory history of equity accounting in Australia is documented in Gordon and Morris (1996) and Vallely *et al.* (1997), so only a brief overview is given here. Associates have long existed in Australia, certainly since the 1960s (Standish, 1972), although when they first occurred is unknown. Statement of Accounting Practice D9, *Treatment of Investments in the Balance Sheets of Trading Companies*, issued in 1970 by the Institute of Chartered Accountants in Australia, recommended that associates be separately disclosed at cost, or at valuation if permanently below cost (the *cost method*). Three Australian exposure drafts, issued in 1971, 1973 and 1979, like standards in the U.S.A. (APB Opinion 18) and the U.K. (SSAP 1), recommended implementation of equity accounting in consolidated accounts.

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[4] For example, Standard AASB 1001, *Accounting Policies*, para. 6 allows a change in accounting policy to occur only when it is necessary to comply with accounting regulations, if an accounting standard is flexible and permits the change, or if there is no standard but the change will result in improved relevance and reliability in the information produced.

The three exposure drafts failed to become standards. In 1972, the Victorian Corporate Affairs Commission challenged the legality of applying equity accounting in consolidated accounts. The grounds were that, because the Companies Act defined group accounts (of which consolidated accounts were the most popular type) as covering the holding company and subsidiaries only, profits of other entities such as associates could not appear therein. This legal impediment to equity accounting was restricted to Victoria and the Australian Capital Territory until 1987, after which it spread Australia-wide.[5]

The legal impediment directly influenced the first Australian standard on equity accounting, AAS 14, *Equity Method of Accounting* (operative 31 March 1984), issued by the Australian accounting profession. To bypass the legal impediment, AAS 14 required equity accounting in supplementary disclosures, either as a third column adjacent to the consolidated accounts or as detailed footnote disclosures. An amendment to AAS 14 in 1986 (which would have allowed equity accounting in consolidated accounts for companies registered outside Victoria and the ACT) was still-born (Gordon and Morris, 1996, p. 158). Standard ASRB 1016, a legally binding standard issued by the Accounting Standards Review Board in September 1988, relegated equity accounting to a brief footnote disclosure, but in January 1989 AAS 14-type supplementary disclosures were permitted. In short, AAS 14 and ASRB 1016 required equity accounting adoption in supplementary disclosures and not in the consolidated accounts. The legal impediment to equity accounting remained in place until 1998, when it was abolished by the Company Law Review Act. Shortly after, AASB 1016 (1998) required that equity accounting appear in consolidated accounts, aligning Australia with most other countries.

HYPOTHESIS DEVELOPMENT

Contracting efficiency factors are relatively permanent characteristics of the firm's organizational, operating and/or financing arrangements that managers, owners and/or creditors believe are useful in minimizing agency costs and maximizing firm value. Opportunistic factors are incentives for wealth transfer remaining for the manager *after* contracts have been negotiated (Holthausen, 1990; Watts and Zimmerman, 1990). Opportunistic incentives must be unanticipated, by owners/creditors at least, when contracts are negotiated (Christie and Zimmerman, 1994). If managers' opportunistic behaviour had been anticipated in the contracting process, then that behaviour, when it does occur later, will be consistent with efficiency. Conceptually, contracting efficiency and opportunism are complementary explanations of accounting choices, and the relative importance of each is an empirical issue. For convenience, hypotheses about contracting efficiency and opportunistic motivations for adopting equity accounting are presented sequentially. However, we acknowledge that the two sets of motivations overlap.

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[5] Noted in National Companies and Securities Commission Practice Note, *Release 340*, July 1987.

Investment in Associates and Number of Associates

From a contracting efficiency perspective, the manager of the investor firm has more opportunities to book profits opportunistically on non-arm's-length sales between investor and associates: (a) as the investor's number of associates increases, (b) as the proportion of the investor's assets invested in associates increases, and (c) as the number of transactions between the investor and associates increases. Such transactions boost either the investor's or associate's reported earnings (depending on the direction of the sale). If the associate's earnings are boosted, the investor could then influence the associate's dividend policy to obtain in cash the profit from the sale (Zimmer, 1994). Consequently, how investments in associates are accounted for becomes more important in evaluating the investor firm's manager. He/she will prefer equity accounting because eliminating unrealized profits from intercompany sales portrays his/her performance more credibly than the cost method. Shareholders will prefer equity accounting to the cost method because equity accounting reduces the manager's opportunities to manipulate reported earnings. Hence, it is in both parties' interests to use equity accounting for associates. For the years covered in this study, only the number of associates owned and the proportion of firms' assets invested in associates[6] could be measured throughout. Therefore, it is hypothesized that:

H1: Equity accounting adopters are more likely than non-adopters to have higher ratios of investments in associates to total tangible assets in the year of adoption.

H2: Adopters of equity accounting are more likely than non-adopters to have a greater number of associates in the year of adoption.

Earnings Effect

Compared to the cost method, equity accounting will increase reported earnings if the share of the associate's reported profits less the share of unrealized intercompany profits less any goodwill amortization exceeds the share of dividends from the associate.

Contractual relationships between management and shareholders, which depend on reported earnings, could influence the adoption of equity accounting. Management bonus plans often pay managers an annual bonus that, between specified lower and (sometimes) upper bounds, is an increasing function of reported earnings (Healy, 1985; Bushman and Smith, 2001). Bonuses under such schemes can be sensitive to unfavourable changes in reported earnings. If bonus contracts do not specify the method to be used to account for associates, managers have an incentive to boost reported earnings by adopting equity accounting in cases where the earnings performance of the investor has fallen. Australian companies do not routinely disclose details of bonus plans. However, even without a formal bonus plan, managers may still be rewarded on the basis of reported earnings, thus providing an incentive for them to boost reported earnings opportunistically (Ayres 1986).

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[6] Other possible measures were not available for the entire period of our study. Transactions between investor and associates (used by Zimmer, 1994) were not disclosed until 1989. Similarly, guarantees between investor and associate companies (used in Mazay *et al.*, 1993; Zimmer, 1994) were not required disclosures in Australia until the mid-1980s.

Managers may also attempt to smooth reported earnings by accounting policy choices in cases where earnings otherwise would fall (Scott, 1991). Therefore, adoption of equity accounting is also more likely where the investor's own earnings have fallen. Finally, an improved reported earnings performance could also protect managers from removal by shareholders (Christie and Zimmerman, 1994, p. 542), and reduce the likelihood of takeover. The incentive to boost reported earnings is likely to be greater the poorer the firm's earnings performance in the absence of equity accounting (namely, the lower the positive change in earnings per share or the higher the negative change in earnings per share). Consequently it is hypothesized:

H3: Firms that adopt equity accounting will have a poorer change in earnings than non-adopters.

Because both AAS 14 and ASRB 1016 have non-compliance costs, those of ASRB 1016 being greater,[7] some firms are likely to adopt equity accounting even if its impact on earnings is unfavourable. If adoption is opportunistic, firms will take advantage of the flexibility in presentation given by those standards. Where the associate is profitable, investors will opportunistically emphasize equity accounting results by using a third column supplementary statement. Conversely, where the associate is unprofitable, adopters will disclose equity accounting results in footnotes—as either supplementary statements or abbreviated notes.[8] Accordingly, it is hypothesized:

H4: After AAS 14, where the effect of adoption on reported earnings is positive, equity accounting will be adopted in third-column supplementary statements; where the effect of adoption on reported earnings is negative, equity accounting will be adopted in footnote disclosures.

Leverage Effect

The role of debt covenants in reducing conflicts of interest between debt holders and the firm is well known (Watts and Zimmerman, 1986, 1990). Firms close to contractual debt restrictions, such as borrowing limits or minimum interest coverage ratios, have an incentive to circumvent them by selecting reported income and/or asset increasing accounting policies, provided that debt contracts permit it. U.S. evidence tends to favour this *debt hypothesis* (Fields *et al.*, 2001, pp. 271–5; Beatty and Weber, 2003).

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[7] Because AAS 14 was enforced only by the accounting profession and ASRB 1016 was enforced by company law, non-compliance with AAS 14 was higher than with ASRB 1016 (Mazay *et al.*, 1993, p. 34; Zimmer, 1994, p. 241).

[8] Before AAS 14, opportunistic adoption of equity accounting is more likely if the impact on reported earnings is positive and less likely if it is negative. We cannot test this proposition because the impact of equity accounting on non-adopters is unobservable.

In Australia, Whittred and Zimmer (1986) surveyed the covenants in debentures issued publicly by forty-one companies between 1972 and 1983. Typically, the covenants restricted the borrowers' ratios of either total external liabilities, or total secured liabilities, to total tangible assets, and these ratios were ongoing constraints. Interest coverage ratios were found infrequently and applied only at the time when each company borrowed funds. Stokes and Tay (1988) reported very common use of ratios of total external liabilities, or total secured liabilities, to total tangible assets in fifty-eight unsecured convertible note trust deeds issued publicly between 1976 and 1985. These surveys cover much the same period as the present study and contain firms from many industries. In both, maximum debt ratios were based on consolidated accounts, not supplementary disclosures (except that total external liabilities included contingent liabilities). In Whittred and Zimmer (1986), about 30 per cent of contracts restricted the inclusion of investments in marketable securities in total tangible assets. Similarly, Stokes and Tay (1988) reported that only eleven of their fifty-eight deeds excluded investments from total tangible assets and only three deeds explicitly modified or unravelled the effects of equity accounting.

Ramsey and Sidhu (1998) and Cotter (1998) provide evidence of the borrowing covenants in *private* debt contracts between Australian banks and corporate borrowers. Ramsey and Sidhu's study is of sixteen private debt contracts between 1982 and 1994. Cotter's evidence is a mixture of actual contracts, questionnaires and interviews relating to private debt in the 1990s. Both works report broadly similar findings. Typically, borrowings are restricted by a maximum debt to asset or debt to equity ratio, and there is a minimum interest coverage ratio as an ongoing test. Accounting methods for calculating these ratios are determined using rolling GAAP. These ratios are defined in terms of consolidated numbers (Ramsey and Sidhu, 1998, p. 198). Unlike public debt, private debt contracts have more tailor-made restrictions, but, importantly, there is no mention of including supplementary disclosures of equity accounting in covenant ratios; indeed, investments in associates are never mentioned.

In short, for the majority of debt contracts in these studies, equity accounting was not forbidden. However, only equity accounting in consolidated accounts, and not in supplementary disclosures, would impact on borrowing ratios. Therefore, relaxing borrowing constraints should be a motive for equity accounting adoption before *but not after* AAS 14, because AAS 14 and ASRB 1016 required the method in supplementary statements and not in consolidated accounts. Accordingly, it is hypothesized that:

H5: Adopters of equity accounting before, but not after, AAS 14 will have higher leverage in the year of adoption than non-adopters.

H6: Adopters of equity accounting before, but not after, AAS 14 will have lower interest coverage ratios in the year of adoption than non adopters.

Auditor Effect

The Corporations Law and private contracts between stakeholders in companies require that accounting information be audited. The impact of auditor type on accounting policy and disclosure choices is well known (Chow, 1982; Healy and Palepu, 2001). Larger audit firms are more likely to require compliance with accounting standards by their clients. The reasons are that, compared to smaller audit firms, larger audit firms have more accounting expertise, more negotiating power, but also more reputation loss risk.

Before AAS 14, articles on equity accounting in the Australian professional accounting literature tended to criticize the method on conceptual grounds (e.g., Clarke, 1971; Chambers, 1974). In addition, the legal impediment to equity accounting would have created the impression that the method lacked credibility in the Australian context. Therefore, before AAS 14, audit firms might have looked upon equity accounting as a low quality accounting policy, despite its acceptance in the U.S. and U.K. After the release of AAS 14, doubts about the legitimacy of equity accounting would have diminished and auditing firms would then be keen to encourage it as a supplementary disclosure. Given the incentives faced by larger audit firms, it is hypothesized that:

H7: Adopters of equity accounting before (after) AAS 14 are less (more) likely to be audited by large audit firms.

SAMPLE SELECTION AND RESEARCH DESIGN

Equity accounting adoption is examined for the period 1971 to 1989, that is, from the first exposure draft year to the year of operation of ASRB 1016. Adoptions before 1971 were rare.[9] Adoptions after 1989 were influenced by standard AAS 14 (issued June 1990) on consolidated accounts, whose definition of a 'subsidiary' resulted in a large increase, from 1991, in consolidation of non-majority-owned investees (Eddey *et al.*, 2001, p. 11) that previously might have been treated as associates.

Jobson's Yearbook of Public Companies in Australia and New Zealand, 1971–89, was used to identify Australian companies with investments in associates during those years. Their annual reports were then examined to confirm the existence of associates and to ascertain if equity accounting was adopted or not. Companies were classified as having associates if they said they had them or if they owned 20 to 50 per cent of another company. The 1971 Exposure Draft defined an associate as one in which the investor had a 20–50 per cent shareholding. All subsequent Australian exposure drafts and standards defined an associate as an investee over which the investor 'had significant influence', the latter being indicated by a 20–50 per cent shareholding (Gordon and Morris, 1996, Table 1).

We treated a company as an equity accounting adopter if it used equity accounting for the first time: (a) in consolidated accounts between 1971 and 1983;

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[9] In a survey of reporting practices by 120 large Australian companies for 1968, only one company used equity accounting (Standish, 1972).

or (b) supplementary statements or brief footnote disclosures (and any adopters on consolidation) between 1984 and 1989.

For the period 1971–83, 115 adopter companies were identified. Eleven were excluded due to insufficient disclosures about equity accounting; another was excluded because it did not disclose comparative data for the year prior to adoption; two were omitted which revalued investments in associates but actually did not equity account them; and another was excluded because its adoption year was prior to 1971. This left one hundred adopter companies. One hundred and sixty-two other companies were identified that had associates during the period 1971–83, but did not adopt equity accounting at the time.

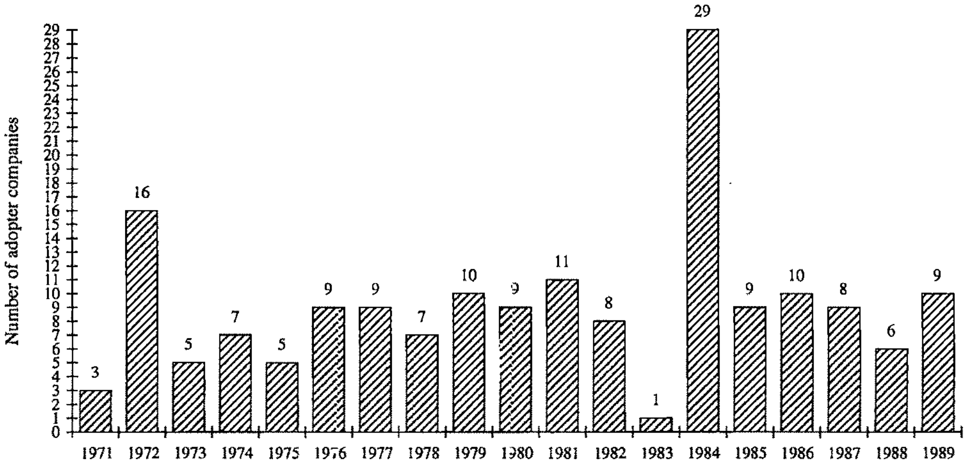
For the period 1984 to 1989, seventy-three adopters were identified. Two were excluded because of lack of comparative figures. In addition, forty-two companies were identified that had associates but did not adopt equity accounting between 1984 and 1989.

Figure 1 shows the pattern of adoptions from 1971 to 1989. A striking feature is the large number of adopters in 1972 and 1984, following issue of the first exposure draft and then of AAS 14.

Because equity accounting adoption occurred over a long period during which changes occurred in economy-wide events such as inflation, economic prosperity,

FIGURE 1

EQUITY ACCOUNTING ADOPTERS IN AUSTRALIA, 1971–89



Number of controls

3	16	5	7	5	9	9	7	10	9	11	8	1	12	5	8	4	2	11

*	*	*	*	*	*
Exposure Draft, July 1971	Exposure Draft, September 1973	Exposure Draft, July 1979	AAS 14, August 1983	AAS 14 Amendment, November 1986	ASRB 1016, September 1988

interest rates, use of debt finance and the popularity of investment in associates,[10] all of which have an influence on our independent variables, some control for these factors is necessary. We could match each adopter in its adoption year with a firm that could have adopted that year but did not, assigned either from the same industry or randomly. Controlling for industry will tend to rule out efficiency explanations of accounting choice, because if equity accounting is the most efficient choice, then other industry members might also be expected to adopt it. Controlling by random assignment leaves open the possibility that omitted, industry-specific variables explain equity accounting adoption. Thus, if the variables tested vary across industries, significant differences on these variables could be due to industry effects (Bowen *et al.*, 1981). To increase the possibility of observing the effect of efficiency factors, we controlled by random assignment. However, in our robustness checks, the possibility of industry effects is addressed.

For the pre-AAS 14 years, each of the one hundred adopter companies was matched, in its adoption year, with a company that had associates that year but did not adopt equity accounting between 1971 and 1983, resulting in a hundred adopter/non-adopter matched pairs. For the post-AAS 14 years, the number of adopters exceeded the number of non-adopters, and the latter did not have associates every year. The forty-two non-adopters were assigned to adopters so that all years were covered and 1984 received the most non-adopters (see Figure 1). There are no significant industry differences between adopters and controls in either pre- or post-AAS 14 years.

Data Collection and Definition of Variables

The following variables were hand-collected from annual reports held in the Australian Graduate School of Management's annual report collection.

Investments in associates/TTA: Investments in associates at cost divided by total tangible assets. Valuation other than by equity accounting was used if cost was not disclosed.

Number of associated companies: The number of associates shown in annual reports.

Change in EPS: EPS_t minus EPS_{t-1} where EPS is net profit after tax, extraordinary items and preference dividends, divided by the number of issued ordinary shares at balance date. Year t is the equity accounting adoption year. For adopters, the effect of equity accounting was removed and dividend income, if disclosed, was added back. Change in EPS was measured both as a continuous variable and as a dichotomous indicator variable—0 if the change was negative and 1 if positive. A justification is that change in EPS can be regarded as a measure of unexpected earnings, on which the market will assess managers. Further, firms appear to manage earnings to avoid earnings decreases and losses (Burgstahler and Dichev, 1997; Dechow *et al.*, 2003; Holland and Ramsay, 2003). Consequently, the *direction* of earnings changes between years is of concern to firms, in addition to the amount of the changes.

Leverage: (a) TEL/TTA, (b) TSL/TTA, and (c) Interest coverage, where TTA (total tangible assets) is total assets less intangibles and future tax benefits; TEL is total external liabilities excluding provisions but including contingent liabilities; TSL is total secured liabilities, and interest coverage is net profit before tax and interest expense divided by interest expense. Consistent with U.S. findings (Watts and Zimmerman, 1990, p. 139;

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[10] Indications of the increasing popularity of associates from 1968 to 1990 can be seen by comparing the survey data in Standish (1972) and Ryan *et al.* (1977, 1980, 1991).

Duke and Hunt, 1990; Press and Weintrop, 1990), we assume that the higher a firm's leverage and the lower its interest coverage, the closer it will be to breaching contractual debt covenants.

Auditor = 1 if company was audited by a large audit firm, 0 if by a small audit firm. Large auditors were the then Big 6 accounting firms: Cooper Bros; Hungerford Spooner and Kirkhope; Peat Marwick Mitchell; Priestley and Morris; Price Waterhouse; Yarwood Vane.

Five data collection problems occurred, which were less severe after AAS 14 because of the supplementary disclosures required by AAS 14 and ASRB 1016.

First, the amount for investments in associates was not disclosed by sixteen adopters and sixty-two non-adopters before AAS 14 or by five adopters and twenty non-adopters after AAS 14. For these firms the variable was proxied by the asset 'other investments', which includes investments in associates as a subset. The proxy produces a bias against H1.

Second, many pre-AAS 14 adopter companies did not disclose dividends received from associates. To the extent such dividends *were* received, the adjustments to remove the effect of equity accounting create a bias in favour of finding a significant difference between adopters and controls for change in EPS (H3). The problem did not occur with post-AAS 14 adopters.

Third, it was impossible to remove completely the effect of equity accounting adoption from TTA for most pre-AAS 14 adopter firms due to inadequate disclosures. Consequently, tests of H3 will be biased against finding a significant difference between adopters and controls for TEL/TTA and TSL/TTA in the pre-AAS 14 years.

Fourth, twelve adopters and thirty-six controls before AAS 14, and eleven controls after AAS 14 did not disclose number of associates, even though it was clear that they had associates. Similarly, fifteen companies before AAS 14 did not disclose interest expense, preventing calculation of their interest coverage ratios.

Fifth, the measurement of leverage varied before and after AAS 14 in relation to lease accounting. Before 1984, few Australian lessee companies disclosed lease commitments in their accounts (Ryan *et al.*, 1980, p. 56). From 1984, Schedule 7 (clause 5, (2) (g)) of the Companies Act required disclosure of leases. Standard AAS 17 on lease accounting (operative March 1984) required that finance leases be either capitalized on lessee's balance sheets or disclosed in footnotes, and operating leases be disclosed in footnotes only. Standard ASRB 1008 (operative November 1986) required that all finance leases be capitalized on lessees' balance sheets. For the post-AAS 14 years, we included finance leases (at present value of minimum lease rentals) in the calculation of total external liabilities and total tangible assets of lessees, whether leases were capitalized on the balance sheet or not. For the pre-AAS 14 years, we usually omitted leases from leverage calculations due to inadequate disclosures.

RESULTS

The results are presented separately for the pre- and the post-AAS14 years for several reasons. AAS 14 had a substantial influence on the pattern of adoption (Figure 1), making the regulated years different from the voluntary adoption

TABLE 1

DESCRIPTIVE STATISTICS FOR EQUITY ACCOUNTING ADOPTERS AND CONTROLS

Variable	*N*	Mean	Minimum	Maximum	*SD*	Skewness
Panel A: 1971–83						
Change in earnings per share	200	.0162	–2	3	.29	2.664
TEL/TTA	200	.52	0	2	.30	1.833
TSL/TTA	200	.15	0	1	.15	1.767
Interest coverage	185	9.15	–535	449	58.42	–1.058
Number of associated companies	152	3.59	0	28	3.74	2.896
Investments in associates/TTA	200	.064	.00	.70	.117	3.305
Auditor	198	.66	0	2	.68	.549
Panel B: 1984–89						
Change in earnings per share	113	.014	–3.18	1.260	–.465	–2.438
TEL/TTA	113	.497	.001	1.636	.333	.969
TSL/TTA	113	.131	0	.808	.182	1.698
Interest coverage	112	43.407	–12.82	2786	276.25	9.262
Number of associated companies	102	3.93	1	30	4.60	3.083
Investments in associates/TTA	113	.159	.00	.898	.201	1.609
Auditor	113	.87	0	2	.66	.15

TEL/TTA = Total external liabilities/Total tangible assets.
TSL/TTA = Total secured liabilities/Total tangible assets.
Investments in associates/TTA = Investments in associates/Total tangible assets.

years. As discussed above, leverage measures before and after AAS 14 differed on lease accounting. Eighteen non-adopters pre-AAS 14 adopted equity accounting post-AAS 14, so testing pre- and post-AAS 14 periods separately does not violate independence assumptions in statistical tests.

Table 1 shows descriptive statistics of the variables for the pre-AAS 14 and post-AAS 14 periods. Most exhibit significant levels of skewness. Therefore, non-parametric statistics were used in univariate tests, and transformations of some variables were made in multivariate analyses.

Adopting equity accounting usually increased reported profits in both periods. Before AAS 14, it increased reported earnings for ninety-two adopters and reduced them for eight adopters, the average being an increase of 16.35 per cent. All adoptions but one were in consolidated accounts. After AAS 14, equity accounting increased reported earnings for forty-four, and reduced them for twenty-seven adopters, the average being an increase of 5.6 per cent (after excluding one outlier, General Investments Ltd, with an increase of 4932 per cent). Twenty-four companies after AAS 14 adopted equity accounting in a third column, thirty-five in footnote supplementary statements, ten in brief footnote disclosures, and two in consolidated accounts (in defiance of AAS 14).

Univariate results appear in Table 2. Because the pre-AAS 14 data are in matched pairs, they were analysed as comparisons between members of each pair. The post-AAS 14 data are not in matched pairs.

TABLE 2

SUMMARY OF UNIVARIATE TESTS: MEDIANS
(One-tailed probabilities in brackets)

	1971–83 unregulated	1984–89 regulated
Investments in associates/TTA		
Adopters	.0211	.1065
Controls	.0217 (.498)	.029 (.001)
Number of associates		
Adopters	2.00	3.00
Controls	2.50 (.170)	1.00 (.012)
Change in EPS		
Adopters	.00	.020
Controls	.02 (.017)	.012 (.466)
TEL/TTA		
Adopters	.51	0.450
Controls	.42 (.038)	0.422 (.447)
TSL/TTA		
Adopters	.13	.039
Controls	.12 (.175)	.056 (.269)
Interest coverage		
Adopters	3.75	2.617
Controls	4.77 (.000)	3.225 (.258)
Auditor		
Adopters	000	1.00
Controls	1.000 (0.01)	1.00 (.352)

Sample sizes:
1971–83: 100 adopter/control matched pairs except for interest coverage (86 pairs), associates (58 pairs) and audit (98 pairs).
1984–89: adopters 71, controls 42 except interest coverage (70, 42), and number of associates (71, 31).
Probabilities are for Wilcoxon paired samples test 1971–83, Mann Whitney U test 1984–89.
Dependent variable = Adoption v. non-adoption of equity accounting.
EPS = Earnings per share without equity accounting.
TEL/TTA = Total external liabilities/Total tangible assets.
TSL/TTA = Total secured liabilities/Total tangible assets.
Investments in associates/TTA = Investments in associates/Total tangible assets.

Before AAS 14: 1971–83

As hypothesized, the median change in EPS for adopters ($.00) is significantly less than that of control firms ($.02); TEL/TTA is significantly greater for adopters than for controls; and adopters have significantly lower interest coverage than controls. However, the two groups do not differ significantly in the levels of TSL/TTA. Auditor is significant and in the predicted direction. The medians are not in the predicted direction for Number of associates or Investments in associates/TTA.

One Big 6 audit firm, Peat Marwick Mitchell, drove the result for Auditor. Peat Marwick Mitchell audited twenty-three members of our sample: five adopted equity accounting, eighteen did not. In contrast, the other Big 6 firms audited eight-four members of our sample: forty-four adopted equity accounting, forty did not. Why Peat Marwick Mitchell disliked equity accounting is unknown: nothing appears in the accounting literature of the day to explain it.

Post-AAS 14: 1984–89

In the post AAS 14 period, Investments in associates/TTA and number of associates are significant and in the predicted direction; the other variables are not significant. However, because firms are classified as either adopters or non-adopters in Table 2, the data miss details of mode of adoption for post-AAS 14 firms. Table 3 classifies post-AAS 14 adopters into two groups—on consolidation/third-column supplementary ($n = 26$) and brief footnote/equity supplementary footnote ($n = 45$). Panel A supports H3: Most non-adopters had increases in EPS, as did most adopters via footnote disclosures, while adopters via third-column/on-consolidation tended to report decreases in EPS (in the absence of equity accounting).

Table 3 Panel B shows the impact of equity accounting, classified as either increasing or decreasing adopters' reported earnings. The panel supports H4. Where equity accounting increased reported earnings, it tended to be adopted about equally in third-column equity supplementary statements/on-consolidation and in footnote disclosures. Where equity accounting decreased reported earnings, it tended to be adopted via footnote disclosures. The result is consistent with Zimmer (1994).

TABLE 3

INVESTORS' CHANGE IN EARNINGS PER SHARE AND EQUITY ACCOUNTING ADOPTION FOR INVESTMENTS IN ASSOCIATES AFTER AAS 14, 1984–89

Panel A: Investors own change in EPS[a]

Investors' change in EPS	No adoption	Footnote disclosure	Third-column and on-consolidation	Total
Earnings decrease	14	15	15	44
Earnings increase	28	30	11	69
Total	42	45	26	113

Panel B: The impact of equity accounting on reported earnings[b]**, and the mode of adoption, 1984–89**

Impact of equity accounting[b]	Footnote disclosure	Third-column and on-consolidation	Total
Decreases earnings	22	5	27
Increases earnings	23	21	44
Total	45	26	71

Panel A: $\chi_2^2 = 4.996$, $\alpha = .041$; Panel B: $\chi_1^2 = 6.151$, $\alpha = .006$.

[a] For adopter companies, investors' own change in EPS excludes the impact of equity accounting.

[b] Impact of equity accounting = (Reported earnings using equity accounting – Reported earnings using the cost method)/Reported earnings using the cost method.

TABLE 4

PAIRWISE PEARSON CORRELATION COEFFICIENTS FOR INDEPENDENT VARIABLES IN YEAR OF ADOPTION

	Change in EPS	Size	TEL/ TTA	TSL/ TTA	Interest coverage	Number of associates	Investments in associates/TTA
Panel A: 1971–83							
Size	.081						
TEL/TTA	–.041	–.023					
TSL/TTA	–.066	–.062	.379*				
Intcov	.148*	.009	–.205**	–.077			
Number of associates	.092	.438*	.077	–.028	.001		
Investments in associates/TTA	–.097	–.029	–.025	–.176*	.040	–.047	
Auditor	.026	.010	–.060	–.113	–.055	.074	.034
Panel B: 1984–89							
Size	.009						
TEL/TTA	.108	.085					
TSL/TTA	.131	–.102	.470**				
Intcov	.039	–.035	–.185	–.108			
Number of associates	–.021	.302**	.138	–.095	–.068		
Investments in associates/TTA	.044	–.085	–.108	.026	.103	–.126	
Auditor	–.028	.016	–.098	–.292**	–.113	.065	–.173

*P = .05, **P = .01.
Change in EPS = Change in earnings per share.
TEL/TTA = Total external liabilities/Total tangible assets.
TSL/TTA = Total secured liabilities/Total tangible assets.
Investments in associates/TTA = Investments in associates/Total tangible assets.
Size = Market value of equity.

Multivariate Analysis

Correlation matrices of the independent variables appear in Table 4; Panel A for pre-, and Panel B for post-AAS 14 data. The table includes size, measured as market value of equity, which will be used as a control variable, given the well-documented association between accounting policy choice and size. Both panels reveal significant correlations between size and number of associates and between TEL/TTA and TSL/TTA.

Because of significant levels of skewness (Table 1), square root transformations were used for most variables in the regression analyses that follow.[11] Nine companies with negative interest coverage ratios were recoded as zeros. About 40 per cent of the sample had negative values for change in EPS, precluding square root transformation, so it was converted to a 0/1 dummy variable: 0 for negative or zero

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[11] Square root transformations were used rather than logarithmic transformations because some independent variables had values between 0 and 1.

TABLE 5

COX REGRESSIONS OF EQUITY ACCOUNTING ADOPTION: BEFORE AAS 14, 1971–83

	Expected sign	Model 1 (n = 198)		Model 2 (n = 198)	
		Coefficient	Probability	Coefficient	Probability
Change in EPS	(–)	–.734	.012	–.771	.009
TEL/TTA	(+)	1.628	.036	1.726	.030
Intcov	(–)	.000	.498	–.006	.466
Number of associates	(+)	.087	.348		
Investments in associates/TTA	(+)	–.295	.393	–.224	.418
Auditor	(–)	–.493	.019	–.518	.016
Size	n/a			.145	.076

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Model 1: χ^2_6 = 14.564; probability = .024; Model 2: χ^2_6 = 16.140; probability = .013.
Dependent variable = Adoption / non-adoption of equity accounting.
Change in EPS = 0 if ≤ 0, 1 if > 0.
TEL/TTA = Square root Total external liabilities/Total tangible assets.
INTCOV = Square root Interest coverage ratio.
Auditor = 0 if non-big 6, 1 if big 6 firm other than PMM, 2 = PMM.
Investments in associates/TTA = Square root Investments in associates/Total tangible assets.
Size = ln market value of equity.
Data are 100 matched pairs of equity accounting adopters and controls.
All probabilities are one-tailed.

values, 1 for positive values. All transformed variables had skewness coefficients between 0 and 1, except interest coverage (4.932).

Before AAS 14: 1971–83

Cox regressions, which take account of paired data, were run, the dependent variable being dichotomous—equity accounting adopted or not (Table 5). Model 1 contains all independent variables except TSL/TTA, omitted because of its high correlation with TEL/TTA. Missing values for interest coverage (fourteen companies) and number of associates (forty-eight companies) are replaced by the median value for all other companies (4.19 for interest coverage and 2 for associates). In Model 2, size replaces number of associates, given the significant correlation between them. In each model, the variable Auditor was coded 2 for Peat Marwick Mitchell, 1 for other Big 6 firms, and 0 for non Big 6 auditors. The results are similar for both models: Change in EPS, TEL/TTA and Auditor have significant coefficients in the predicted direction; the other variables do not.

After AAS 14: 1984–89

Because the post-AAS 14 data are not in matched pairs, two ordinal regressions were run with the same independent variables as for the pre-AAS 14 data (Table 6). The dependent variable is a five-way indicator variable: –1 for non-adopters, 0 for all brief footnote adopters, 1 for all full footnote adopters, 2 for third-column and 3 for on-consolidation adopters. The first regression includes, and the second excludes, non-adopters. In the second regression, the impact of equity accounting

TABLE 6

ORDINAL MULTIPLE REGRESSION OF EQUITY ACCOUNTING ADOPTION AFTER AAS 14, 1984–89

	Expected sign	Model 1 (n = 101)		Model 2 (n = 70)	
		Coefficient	Probability	Coefficient	Probability
Change in EPS	(–)	–.841	.016	–.944	.035
TEL/TTA	(+)	.748	.178	1.535	.068
Intcov	(–)	.015	0.326	–.016	.335
Number of associates	(+)	–.017	0.475	–.586	.056
Investments in associates/TTA	(+)	3.088	.000	1.188	.148
Auditor	(+)	.020	.474	.406	.170
Year	(–)	–1.194	.000	–1.085	.006
Size	n/a	.103	.235	.131	.236
Impact	(+)	n/a	n/a	1.552	.004

Model 1: χ^2_8 = 31.633, probability = .000; Model 2: χ^2_9 = 27.409, probability = .001.
Dependent variable: –1 = non adopters.
0 = Brief footnote adopters.
1 = Full footnote adopters.
2 = Third column adopters.
3 = On-consolidation adopters.
Change in EPS = 0 if ≤ 0, 1 if > 0.
TEL/TTA = Total external liabilities/Total tangible assets.
Intcov = Interest coverage.
Investments in associates/TTA = Investment in associates/Total tangible assets.
Size = Market value of equity.
Year = 0 for 1984, 1 for 1985–88, 2 for 1989.
Impact = 1 if equity accounting increases reported earnings, 0 otherwise.
Auditor = 2 if PMM, 1 if other Big 6, 0 if not Big 6.
All variables except change in EPS, Auditor and Year have square root or fourth root transformations.
All probabilities are one-tailed.

adoption is measured by Impact: coded 0 if the earnings impact of equity accounting was negative or zero, and 1 if positive. To allow for the effects of AAS 14 and ASRB 1016, both regressions have the variable Year, coded 0 for 1984, 1 for 1985–88, and 2 for 1989.

Table 6 shows that, after AAS 14, Investment in associates/TTA and Change in EPS are significant in the predicted directions in the regression that includes both adopters and controls. Year is significant and negative, indicating that as time passes more companies adopt equity accounting in footnotes (as required by ASRB 1016). In the regression containing adopters only, Change in EPS and Impact are significantly negative and significantly positive, respectively, indicating that equity accounting tended to be adopted in a third column or on consolidation where the adopter's own profits were decreasing, and/or where the impact of equity accounting was positive. Year is again significant and negative. However, Investments in associates/TTA is no longer significant, suggesting that this variable is only important for the decision to adopt equity accounting and plays no role in deciding mode of adoption. Number of associates is significant but not in the direction hypothesized. TEL/TTA, Auditor and Interest coverage are not significant in either regression.

Robustness Checks

For the pre-AAS 14 years, we added industry dummy variables to the regressions, with no substantive change to the results. The regressions were rerun with no replacement of missing values for interest coverage, then with interest coverage omitted completely, and the results are the same as in Table 5. We also used logistic regression instead of Cox regressions for the pre-AAS 14 years with the same transformations of variables as in Table 5. To allow for exposure draft effects, we included a variable Year coded zero for non-exposure draft years and 1 for exposure draft years. The unpaired data produced similar results to Table 5: Change in EPS, Auditor (and to a lesser extent TEL/TTA) were significant in the predicted directions when Size (replacing Associates) was included in the regression; but only Change in EPS and Auditor were significant in the predicted direction when Associates replaced Size and the sample reduced to 139 companies. Other explanatory variables were not significant. For the pre-AAS 14 years, Investments in associates/TTA contains measurement error, so we identified thirty-three matched adopter/control pairs with clean measures of Investments in associates/TTA for each pair member and reran the Cox regressions from Table 5 on this subsample. Auditor is still significant in the predicted direction, but the other variables are not.[12] For the post-AAS 14 years, we added industry dummy variables to the regressions in Table 6, with no changes to the results. We also ran the regressions omitting 1989: Results were statistically weaker but otherwise were unchanged.

DISCUSSION AND CONCLUSIONS

Determinants of equity accounting adoption in Australia between 1971 and 1989 were examined. Equity accounting tended to increase reported earnings and reduce a negative change in investors' own EPS (before equity accounting). After AAS 14, the mode of adopting equity accounting—third-column/on-consolidation versus supplementary/brief footnote—allowed investor companies with poor own earnings performance to give prominence to equity accounted results via third-column/on-consolidation adoption.

Before AAS 14, equity accounting adopters also had significantly higher leverage (TEL/TTA) than non-adopters. After AAS 14, they did not. Before AAS 14, equity accounting tended to be adopted on consolidation and thus directly eased debt constraints. After AAS 14, adoption via supplementary disclosures did not directly relax contractual borrowing limits specified as consolidated balance sheet ratios. Therefore, after AAS 14, leverage was hypothezised to have no significant effect on the adoption of equity accounting; and our results support this. The findings for leverage are consistent with equity accounting being adopted to relax leverage constraints before, but not after, AAS 14.

In the post-AAS 14 years (1984–89), Investments in associates/TTA is statistically significantly greater for adopters than for non-adopters, in the year of adoption.

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[12] One referee suggested: 'it may well be that the result for "Auditor" can be reflecting a contractual efficiency motive following ideas from the audit choice literature'.

For the pre-AAS 14 years the findings for Investments in associates/TTA were not as predicted. Number of associates is not significant in multivariate analyses before or after AAS 14.

Results here are consistent with equity accounting being adopted for opportunistic reasons before and after AAS 14. Equity accounting appears to have been adopted to manage earnings in both periods. Before AAS 14, equity accounting was also adopted to relax borrowing constraints, namely leverage and interest coverage ratios, consistent with the debt hypothesis. After AAS 14, equity accounting had no impact on contractual borrowing restrictions and, as predicted, we find no link between equity accounting adoption and debt ratios in this period.

After AAS 14, the evidence is also consistent with contracting efficiency explanations for equity accounting inasmuch as Investments in associates/TTA is significantly associated with equity accounting adoption. However, if Investments in associates/TTA acted as a contracting efficiency factor in equity accounting adoption, the variable would be significant before *and* after AAS 14—but it is not. Investments in associates/TTA is not significant before AAS 14 even for those sixty-six firms where clean measures of the variable were available. This is consistent with equity accounting being adopted post-AAS 14 for reasons other than contracting efficiency. What could those other reasons be? One possibility is that the post-AAS 14 result for Investments in associates/TTA is simply due to AAS 14's and ASRB 1016's requirement that all material investments in associates be equity accounted and has nothing to do with contracting efficiency.

In short, the findings indicate that equity accounting has been adopted wholly or partly for opportunistic reasons before and after AAS 14. The evidence for contracting efficiency is less clear-cut. Our findings are contrary to those of Mazay *et al.* (1993) and Zimmer (2004), who found support for contracting efficiency, but are consistent with those of Bohren and Haug (forthcoming) for equity accounting usage in Norway.

The article extends the investigation of the determinants of equity accounting usage. It has used the combination of (a) focusing on the adoption year, and (b) including results from regulated and unregulated periods to obtain more powerful results compared with prior studies. Future work could examine additional independent variables such as corporate governance factors in years when such variables were disclosed. Work also remains to be done on the determinants of equity accounting adoption in Australia after abolition of the legal impediment in 1998.

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G. R. OLIVER AND R. G. WALKER

Reporting on Software Development Projects to Senior Managers and the Board

It is contended that the scale of some in-house software projects (and the potential impact of project failure on an organization's operating capabilities and reputation) is such that the progress of those projects warrants the concentrated attention of senior managers (and possibly, the Board). The article utilizes a case study to illustrate how the adoption of key proposals outlined in the business information systems and software engineering literatures for the management of these projects may not necessarily be effective. This work augments Walker and Oliver (2005), which examined the options when accounting for software expenditure and recommended expensing for consistent treatment. This article then reviews the 'information needs' of senior managers, and presents a set of six reporting templates to facilitate the effective monitoring of progress of software projects (including post-migration expenditure on system enhancements and maintenance, and efforts to capture planned benefits). In some circumstances, the scale and risks associated with software development projects warrant oversight of these projects by the Board, possibly through the establishment of specialist 'IT governance' subcommittees. Accordingly, a model charter for an IT governance committee is presented in an appendix.

Key words: IT corporate governance; Management reporting; Model charter; Reporting templates; Software development.

A previous article in *Abacus* provided some Australian examples of projects which had a serious impact on a firm's operating capability, reputation or financial viability, and after exploring options for the accounting treatment of software development expenditure in external reports, proposed that expenditure on software for internal use should be expensed rather than capitalized (Walker and Oliver, 2005). This article focuses on reporting and governance arrangements[1]

[1] Arguably the term 'government' is derived from a Greek word διευθυνω—which can mean 'manage', 'oversee', 'direct' or 'lead'. In the context of discussions of 'corporate governance', a distinction is commonly drawn between 'managing' and 'governing'—with the emphasis of the latter being on 'overseeing' activities and setting strategic directions, rather than hands-on management.

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within organisations.[2] It examines how information about progressive expenditure on software development projects might be reported to senior managers, and possibly, specialist IT governance committees, in order to ensure that expenditure is controlled, to reduce 'surprises' in the form of cost overruns, and to hold staff accountable for their performance in developing and implementing those projects. The role of senior managers is emphasized since managers have individual line responsibilities for their own budget and performance as well as responsibilities as members of an executive team; directors, for their part, are accountable to owners. It is contended that since the amounts invested in software development may be material (particularly to firms engaged in the financial services industry),[3] more is required than careful project management. Software development projects may be so critical to the success of a business that arrangements for oversighting their progress are a critical element of corporate governance.[4]

There is an extensive literature (from both academic researchers and practitioners) concerning business information systems and software engineering projects (see Table 1). From it can be distilled several normative propositions as to what is regarded as 'best practice' in the planning, development and implementation of software development projects:

1. Efforts should be made to ensure that projects are aligned to an organization's business strategy;
2. Criteria for the assessment of information systems initiatives should be predetermined (irrespective of whether those initiatives are proposed by business units or by IT departments);
3. Substantial controls should be established, over both expenditure and product quality; and
4. Knowledge that project reviews are scheduled adds discipline to the management of software development project.

These four propositions can be broken down into subsidiary propositions detailing steps needed to be taken to ensure productive software development. These are identified in Table 1, together with references that are representative of contributions to this literature.

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[2] Many contemporary guidelines regard 'corporate governance' as relating to sets of arrangements and processes (some established by regulation) affecting the interests of external stakeholders (see, e.g., ASX Corporate Governance Council, 2003; London Stock Exchange, 2004; OECD, 2004). However, a broader concept of governance concerns how an entity is 'governed' (as opposed to 'managed') and extends to oversight of arrangements and processes *within* organizations. Indeed, the latter concept is implicitly adopted in regulations or authoritative guidelines that, for example, propose that audit committees should be concerned with internal controls, or that listed companies should establish compensation committees to review policies and practices for the remuneration of a greater set of employees than executive directors. The latter broad concept of 'governance' is adopted here, and the term is used to relate to systems established or endorsed by governing bodies (boards) to oversight operating, financing and investing activities and to safeguard an organization's human, physical and financial resources.

[3] Some examples were provided in Walker and Oliver (2005).

[4] The same comments apply to the need for systems to ensure effective controls over *existing* systems—a matter discussed further below in relation to the charter of IT governance committees.

TABLE 1

COMMON VIEWS ABOUT 'BEST PRACTICE' IN THE MANAGEMENT OF SOFTWARE PROJECTS

General proposals	Subsidiary proposals	References
Align project to the organization's strategy	The strategic plan should clearly define business strategic priorities The information systems strategy should plan for future changes in information systems and technology Comprehensive assessment of potential solutions is undertaken to avoid overlooking viable alternatives	McFarlan *et al.* (1983); Boynton *et al.* (1992); Galliers (1995); Henderson *et al.*, (1996); Moskowitz and Kern (2003)
Predetermine the criteria for assessment	A business case is prepared to support the initiative/project using tangible and intangible benefits including formal cost-benefit analyses Financial methods (e.g., pay-back period choice of discount rates/internal rate of return; sensitivity analysis) are stipulated with agreed thresholds and calculation criteria Risks are assessed and unacceptable risks are mitigated	Seward (1975); Buss (1983); Berger (1988); Sassone (1988); Boehm (1989); Ould (1990); Hochstrasser and Griffith (1991); Mirani and Leederer (1993); Hares and Royle (1994); Hogbin and Thomas (1994); Barua *et al.* (1995); Neuman (1995); Ballantine *et al.* (1996); Braithwaite (1996); Whiting *et al.*, (1996); Ballantine and Stray (1998); Yetton (1997); Fitzgerald (1998); Remenyi (1999); Devaraj and Kohli (2002); Li and Johnson (2002)
Apply multiple controls over expenditure and product quality	A feasibility study is used to establish viability of the preferred solution A testing regime is established to discover defects Commissioning is regimented to ensure systematic preparation	Brooks (1975); Lay (1985); Youll (1990); Coleman and Jamieson (1991); Farbey *et al.* (1992); Willcocks and Lester (1993a, 1993b); Rowsell-Jones (1995); Remenyi *et al.* (2000); Seddon *et al.* (2001)
Management reviews are conducted to improve project outcomes	A systematic review occurs for all subsequent proposals (variations) for changes to the scope of projects, and changes in projected costs and planned delivery dates Project records are selectively included in the internal audit program Project documentation is subject to verification A post-implementation assessment is conducted of all major projects	Turner (1980); Capper (1988); Lincoln (1988); Abdel-Hamid and Madnick (1990); Kumar (1990); Lincoln and Shorrock (1990); Farbey *et al.* (1993); Mirani and Lederer (1993); Norris (1996); Peters (1996); Ward *et al.* (1996); Murphy (2002)

Notwithstanding the existence of an extensive literature on 'best practice' in managing software development activities, little attention has been given to how senior managers and the Board can be informed about progress on business information systems projects (exceptions include, e.g., Berger, 1988; Grindley, 1995;

Devaraj and Kohli, 2002). The Board can be informed about these matters in a variety of ways: formal reports, presentations from vendors or IT staff, and feedback from key stakeholders. In the business information systems literature, contributions that have considered formal reporting arrangements have primarily focused on reports dealing with efficiency of effort (see, e.g., Hochstrasser and Griffith, 1991; Hogbin and Thomas, 1994; Gardner, 2000; ISACA, 2000) rather than whether the investment of resources is in accordance with prior budgetary allocations, or likely to secure promised benefits or (more generally) be effective in meeting strategic objectives.

The following hypothetical case study describes a software development project undertaken by an organization that had adopted many of the 'best practices' summarized above. It is a composite based on the authors' observations of major IT projects in around a dozen different organizations (though, following the approach of Drucker, 1974, the facts are disguised to avoid identification of the firms involved). The case describes a software development project that experienced major difficulties, but which after considerable effort (and expense) may well have been regarded as technically successful. The case study concerns the acquisition and development of software. It features a hybrid approach ('buy best of breed' and 'build as bespoke'), reflecting the common contemporary practice of enhancing off-the-shelf packages (Meyers and Oberndorf, 2001). The case study draws on that reported in a previous work dealing with the accounting treatment of software development expenditure (Walker and Oliver, 2005, esp. pp. 72–3), but has been amplified to place greater emphasis on the steps taken to 'manage' that expenditure, to ensure oversight of software development activities and assessments of risk in this area, and to highlight the information provided to senior managers and the Board during the course of the project. The additional case material provided here is shown in *italics*.

CASE STUDY: INTERNAL SOFTWARE DEVELOPMENT

Finserv Limited operates in the financial services industry, providing services to clients negotiated under period contracts. Finserv's information systems operations and software development had been in-house activities.

Following Board approval of management proposals for Finserv's future strategy, the IT Manager prepared a (subsidiary) 'information systems strategy' to the Board. The IS strategy proposed close alignment of both applications and infrastructure to Finserv's current and prospective client base. An assessment of its current applications found relatively poor functionality and high maintenance costs. The Board concluded that new applications were a competitive necessity. The IS Strategy reviewed three software acquisition options (build, buy or modify a purchased package). The build options (externally develop, in-house develop, shared development) had been carefully assessed against procurement (turn-key, package acquisition) and modifying an acquired package (with modifications becoming part of a later release, becoming extensions to the base product or precluding upgrade to later releases). As a result the Board was confident that it would avoid pitfalls experienced *by its competitors, several of which were known to have engaged in unproductive expenditure on software. Accordingly, the Board accepted the recommendation to replace its existing in-house financial services software by purchasing the rights to use one of several available commercial packages. This course of action was claimed to be more cost-effective than outright software development. It was also suggested that immediate savings were possible as the majority of programmers and business analysts currently engaged on software maintenance and development were on short-term contracts.*

A number of measures had recently been introduced by the Board in order to ensure oversight of spending on IT. Proposals for the replacement or development of either new systems or those taking in excess of one week were to be presented in an annual strategic information systems and technology plan which in turn was produced as part of the annual budget process. At the Board's request, the CEO established a Project Steering Committee involving senior management to supervise each major project and to provide a clear line of reporting to the Board concerning expenditure and realization of benefits. The committee was obliged to present a business case supported by a full cost benefit analysis, and to review all proposed changes to the scope of projects, projected costs or planned delivery dates. The committee was also to approve the budget and staffing of approved projects, though responsibility for managing within the approved budget and appraisal of the financial implications of all change requests was delegated to the IT Manager. (The IT Manager in turn, with the approval of the CEO, delegated staffing responsibilities to the Software Development Manager.) Further, the Board charged the committee with undertaking a post-implementation review of completed projects so that Finserv could learn from past experience before embarking on future projects.

In 2000, the committee commissioned an independent feasibility study from an external consultant at a cost of $500,000. The consultant agreed with the IT Manager that the option of 'buy a package and modify' was optimal. *The consultant's report reviewed the changes that would be required to be made to available packages to meet the special requirements of the firm's client base, as well as specific statutory rules, and local tax legislation, and accordingly recommended the purchase of a specific package as being the most cost-effective. The consultant presented a business case which included a cost benefit analysis suggesting that an outlay of $10 million would produce recurrent savings of approximately $4 million per annum. The consultant's report concluded that 'the second-to-none functionality that will be available will more than adequately meet the expectations discovered through extensive consultation with clients and therefore will provide Finserv with significant competitive advantage'.*

Based on the business case provided to it, the Board agreed a budget of $12 million for the project in 2000. This figure included a payment of the licence fee of $1.5 million and the first annual maintenance amount of $500,000, both payable on signing the contract, and an allowance for 'contingencies' of $2 million. A schedule of the project activities accompanying the budget indicated that the new software would be in production on 2 January 2002. The Board also sought monthly reports on the headcount in the IT Department, as it was concerned that a high level of work requests for modifications of the existing software had led to excessive staffing in this area, mainly through the employment of casual systems analysts and programmers. The initial feasibility study suggested that the new software could enable a reduction in staff numbers of around eighty-five (including seventy contractors to the IT Department).

The project formally commenced in January 2001 under direction of a Software Development Manager with financial sector experience hired on a twelve-month contract. The Steering Committee recognized that its in-house capabilities to modify an off-the-shelf package were limited. It was deemed desirable to have day-to-day responsibility for the project assumed by a manager with experience in the industry and familiarity with stakeholder expectations.

Software functionality modifications to meet the needs of the firm's clients were completed during 2001, in accordance with the project schedule, at a cost of $8.3 million. *The involvement by the Software Development Manager of in-house 'users' in acceptance testing identified a range of programming defects associated with computations and the user interface.* Despite schedule pressures, these defects were rectified prior to the software being put into production.

Data conversion was completed at the cost of $100,000. This comprised checking of transactions and balances in the old system and uploading checked balances into the new system. A number of urgent enhancements were authorized when it was recognized that the new system required full transaction detail from legacy systems to allow correct computations. This led to additional, unbudgeted costs, including testing, of $600,000. Although minor problems were identified as fixes requiring action, none were 'day 1' problems. Despite the additional work, the new system was commissioned as scheduled on 2 January 2002, and the project was then under budget by $1 million.

Such was the extent of the modifications to the licensed software that $100,000 was paid to a specialist technical documentation contractor to prepare on-line manuals for operators. This was unbudgeted.

After the first end-of-month run (January 2002), 'day 2' problems emerged. As a consequence, the project committee agreed that two transaction-specific modules were to be rewritten and re-tested. When eventually put into production on 30 May, the additional work had cost $1.5 million. In addition, both modules required new computation and reporting subsystems as well as additional (and expensive) output testing of the entire system at an additional cost of $750,000. Some records which were in error remained quarantined because the new programs failed to process them correctly. Additional programming costing $500,000 was required to handle the exceptional conditions required by the quarantined accounts. *These additional expenditures were authorized by the IT Manager either as within delegations, as acceptable spending of the remaining surplus from the original budget, or a combination of both.* Although this work was completed by the reporting deadline of 30 June, account balances were unable to be reconciled by finance staff. At nights and weekends during July, checks were made of all records to ensure accuracy (cost $50,000) and each of the modules for valid computations (cost $50,000). This confirmed further computation errors were still present in the rewritten modules but also revealed that some incorrect record details had been transferred unchecked to the new system.

Advice to the Board from the Steering Committee emphasized the project was within budget; however, business units outside IT had incurred unbudgeted costs. The value of the current approach was reiterated in the context of the IT Strategy and the feasibility study. A memo from the Software Development Manager in support of the project warned that 'disruption or delay would jeopardize the likelihood of substantially reducing the number of contractors engaged on software development'. On 30 June 2002 Board approval was given for Finserv to enter into a fixed price contract for $4 million over two years to resolve outstanding enhancement requests.

Subsequently, Finance staff calculated that $500,000 in staff time had been spent in reconciling account balances. They estimated an additional $500,000 using casuals would be spent in correcting errors now incorporated in individual record balances that had been quarantined.

In March 2003 the firm's major clients required additional modifications to the software to accommodate changes in legislation and to offer a wider range of choices to the client's customers. These modifications would necessitate total rewriting of one module of the software, at a cost of $1 million. At the same time, the software vendor indicated that it had commenced work on its new generation financial services suite that it expected would be released in around eighteen months, and gave notice that the existing software package would no longer be supported after two years.

In 2004, two years after migration, the mandatory post-implementation review of the new system was conducted. It was found that IT staff and contractor numbers had only reduced by fifteen (many fewer than the seventy forecast). This was primarily because, on advice from the Software Development Manager, the Project Steering Committee had agreed to extend the contracts of fifty consultants to complete additional development. This included a backlog of approximately one hundred change requests, all sought by operational staff to improve the efficiency of their activities. Additionally, there were ten small projects intended to eliminate the need for manual work-arounds and tasks to handle exceptional circumstances. Further, there were six separate small projects aimed at enhancing Finserv's internet capability and system security. The scale of all of these additional projects was below the threshold for referral to the Board since each had an estimated average duration of four days (twenty-three developer-months). In the Finance Department, account balances were being reconciled monthly and any errors identified in clients' accounts were being corrected within thirty days. Clients reported that, despite initial teething problems, they were now very satisfied with the new system.

INTERPRETATION

It is suggested that senior managers, if they are effectively to monitor software development projects (after they have been approved), would need information that can be grouped into three main classes, namely information that will:

1. Support decisions to approve the staged advance of the project from feasibility assessment, development, migration, implementation, termination and post-implementation (Seward, 1975; Lay, 1985; Coleman and Jameison, 1991; Farbey *et al.*, 1992; Whitten, 2000);
2. Provide assurance that the project is within acceptable bounds of budget, quality and schedule (Balachandra and Raelin, 1980; Turner, 1980; Pinto and Slevin, 1987; Archibald, 1992; Buttrick, 2000); and
3. Support subjective assessments of benefits realization (Mirani and Lederer, 1993; Norris, 1996; Peters, 1996; Ward *et al.*, 1996; Devaraj and Kohli, 2002; Murphy, 2002).

The case study illustrates several types of information or reports that senior managers and the Board could have utilized to avoid 'surprises' and, possibly, take actions that would have lowered costs or achieved a better return on the investment in new software. Shortcomings in reporting were intertwined with shortcomings in the governance arrangements operating within the organization.

Scope of the Initial Feasibility Analysis

Deficiencies in the information being provided to senior managers and the Board can be traced to the initial feasibility study, which incorporated a cost-benefit analysis (CBA) which focused on costs to be incurred by the IT Department, rather than considering the impact on the organization as a whole. The CBA counted 'benefits' inside the IT Department in the form of savings in operational staff, but not the 'costs' likely to be incurred elsewhere (notably the costs of data conversion, acceptance testing and any other costs likely to be incurred following migration of the system).

Arguably, these difficulties could have been avoided if senior managers likely to be affected by the migration had been primarily responsible for preparing the initial analysis, rather than 'outsourcing their jobs' by delegating that critical task to consultants.

Scope of the Project Budget

Reflecting the limited scope of the initial feasibility study, the budget for the project only included expected external outlays and IT staff costs, up to the stage of system migration, and disregarded the ramifications of changes in the business processes outside the IT Department.

In any case, the costing of the project was inadequate with likely activities either overlooked (e.g., production of documentation; some testing) or underestimated (e.g., programming of computations and reporting). Apparently the budget was formulated without reference to any risk assessment. Consequently, the use of contingency essentially became a padding device which concealed the disclosure of useful information on the state of the project. In these circumstances the expenditure variance could quickly move from under-spent to overspent.

Reporting on Project Status

Had relevant staff been required to report promptly both financial and non-financial data that related actual progress and actual costs against scheduled progress and budgeted costs in past periods, then senior managers and the Board would have become aware of delays in the project and the considerable resources (both within the IT Department and elsewhere in the organization) that were being expended. The reporting of estimates of progress to be achieved in the next period would provide the basis for closer scrutiny and, possibly, remedial actions being undertaken in a timely fashion.

Some administrative arrangements were unintentionally dysfunctional. The Board had ensured that a Steering Committee was to oversee the project, approve the budget and staffing, and review planned delivery dates and all proposed changes to the scope of projects. It had endorsed the IT Manager's recommendation that programmers and business analysts be engaged on short-term contracts, with the intention of realizing benefits quickly through reductions in staff numbers. In fact, this arrangement may have created incentives for staff to delay the completion of tasks so that their contracts were renewed—thus adding to overall costs. Whatever the source of cost-overruns, the committee was not required to report its actions to the Board, so that the extent of the cost-overruns was not immediately appreciated. The post-implementation recommendation to obtain further consulting assistance for implementation is likely to reduce the level of reporting without necessarily addressing the root causes of the problems.

Reporting Costs v. Budget

Because the overall costs incurred up to the date of system migration were less than expected, managers may have believed that they were free to spend on a range of enhancements without prior Board approval.

This was compounded by the manner in which the Board approved a budget that incorporated a substantial allowance for contingencies—and effectively delegated authority to spend those sums to the Steering Committee and the CEO, without prior Board approval. The Board may have considered it prudent to allow for 'contingencies', but it effectively lost control over spending because it allowed managers to spend those sums, or the redefine the scope of the project, without seeking prior authorization for previously unidentified expenditure. Indeed, the Board had followed accepted practices in determining what proposals it should review and delegate to senior managers' authority for expenditure without upstream approval.[5] In the circumstances, this actually facilitated further spending on the project before the Board became aware of the risks or scale of cost overruns that could arise.

The failure initially to define the scope of the project in detail may have enabled managers to regard some items of associated expenditure (e.g., the cost of preparing operators' manuals) as being treated as expenses arising from ordinary operating activities rather than as part of the software development project—and hence as *not* warranting prior authorization or even timely reporting to the Board.

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[5] The establishment of a formal schedule of financial delegations is a common requirement in the public sector (see, e.g., Commonwealth of Australia, *Financial Management and Accountability Act*, 1997) and internet searches produce hundreds of references to the schedules published by individual agencies in many countries. However the corporate governance literature contains few references to the use of a schedule of delegations as an element of financial controls within an organization, with some contributions merely suggesting that managers at all levels should have requisite authorities for initiating transactions. One exception is the proposal that 'boards should establish a Register of Delegated Authority for [various] matters' (KPMG, 1994, p. 35).

Arguably a better approach would have been to 'quarantine' the allowance from contingencies in reports on actual costs versus budgeted expenditure, and to follow a two-stage procedure. First, managers should have been required to report upstream as soon as they became aware that the budget for certain items or components of the project was likely to be exceeded (together with revised estimates of costs and completion times), while routine reports on costs versus budgeted expenditure should highlight any variances in spending on specific line items. Second, any proposed expenditure on work that was not part of the original specifications or budgets should not automatically be treated as permissible (even though there was a budgetary allocation for 'contingencies'). Rather, any proposed expenditure on enhancements should be justified subject to a separate assessment before authorization.[6]

Reports on Risks and Revised Cost-Benefit Assessments Before Undertaking Critical Steps

Most organizations would require a careful analysis of cost and benefits and associated risks before they commit major sums to new investments. Arguably, the same business disciplines should be applied before other steps are taken that may involve substantial outlays and the assumption of new or different risks.

In the case study, critical steps in the software development project were (a) the decision to enter into a contract with a software vendor, (b) the decision to migrate to the new software, and (c) the decision to enter into a contract for enhancements. Senior managers and the Board devoted considerable attention to (a), but once committed to the project they paid far less attention to (b) and (c)—and certainly did not require or undertake a formal risk assessment before taking those steps. One consequence was that systems were migrated with defects known to some senior managers, but not to the Board. Moreover, the financial outlays on defect remediation and enhancements *after* system migration were as significant as the sums involved in the initial decision to invest in a customized package. Accordingly, the company found itself committed to escalating levels of funding.

Reports on Prioritization of Work Requests

One consequence of the failure to report regularly on the status of the project was that substantial sums were expended on satisfying work requests initiated by operating staff. As noted previously (Walker and Oliver, 2005), the common practice in the IT industry of software vendors providing services for 'maintenance' may encourage some managers or directors to view expenditures for these services as akin to the cost of servicing plant and machinery—when in fact the work undertaken may involve tailoring the software to the needs of the licensee or (in some cases) enhancements to upgrade the functionality of the vendors' package (though in principle the latter costs should be met by the vendor). Either way, there is a risk that organizations may find themselves making payments that improve their systems or provide minor efficiency gains but which may not be cost-effective for the business.

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[6] Unexpected increases in product prices, labour costs and currency fluctuations may lead to expenditure in excess of budget. An alternative to incorporating a budget allowance for contingencies is to allow variances in expenditure on specified line items (e.g., + 10 per cent) before requiring further approval.

There may not be a need for a detailed cost-benefit analysis of each work-request, but without some formal process for the prioritization of those proposals (either to lower transaction costs, or to reduce the risk of error) an organization will fail to control its spending. In the case study, two years after the migration Finserv was still spending money on a series of small projects which were individually below the threshold for Board authorization but which collectively involved material expenditures. Possibly a formal process of reporting on the prioritization of work requests would have ensured that expenditures were in the interests of the business rather than for the convenience of operators.

Reports on Plans to Realize Benefits

In the authors' experience, a commonly heard lament is that it is easier to identify IT initiatives that promise to lower costs than to actually capture or realize those benefits. The case reveals that expected reductions in IT and operational staff had not occurred as the project dragged on and a series of initiatives were proposed for the ongoing engagement of contractors to further improve systems. As there was no benefit realization plan, neither senior managers, the Steering Committee nor the Board had a means of determining when to expect savings to commence.

Overall Assessment

The case illustrates how it is not sufficient to have proactive senior managers and Board setting policies covering the criteria for approval of capital projects and their administration, to ensure that an organization will systematically assess the organizational implications of project proposals before undertaking financial commitments. While Finserv's senior managers and the Board had utilized a host of traditional tools (such as cost-benefit analysis, budgets and feasibility studies) and standard approaches (such as formal delegations of responsibilities), it had done so without utilizing them appropriately, and without fully integrating management of the project with the overall governance arrangements operating within the organization. The Board was left uninformed about critical decisions which led to cost escalations, and was not in a position to monitor adequately a project that was consuming significant resources. While technically the project might eventually have been a success, delays and cost-overruns meant that projected net benefits were less than originally forecast.

It is granted that some of the shortcomings in reporting and governance arrangements generally illustrated here are not peculiar to software development projects, and could equally occur in other industries. Yet the prevalence of 'failed' or disappointing projects[7] suggests that there is a case for routine upstream reporting to senior managers and the Board about a range of aspects of non-routine expenditure on information systems.

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[7] For statistics from a number of surveys see http://www.it-cortex.com/Stat_Failure_Rate.htm.

REPORTING TO MONITOR PROGRESS

This section of the article outlines an approach to upstream reporting on the progress of software development projects that would ensure that senior managers and the Board are fully informed.

Reporting on the financial status of software development projects would be simpler if all software development costs were immediately expensed (as proposed in Walker and Oliver, 2005). Such a practice would mean that the level of cumulative expenditure versus budgeted expenditure would be far more apparent in routine monthly reports than if part of those expenditures was being capitalized as a 'software asset' and subsequently allocated arbitrarily to periods.

It is proposed that accounting treatments for external financial reporting need not drive the format of internal reporting for management purposes. Hence the proposals in this section are not dependent on the use of the policy of immediate expensing.

In any event, cost data about project work-in-progress are not meaningful unless they are accompanied by comparisons with budgeted expenditure, and technical information about the extent of achievement to date versus planned achievement.

Table 2 sets out a series of suggested formats for reporting to senior managers and the Board. If adopted for the circumstances of the organization and used systematically these formats make those associated with the project accountable for their performance, while providing senior managers and the Board with consistent forms of reporting over different phases of projects as well as different projects. The reporting formats are intended to consider projects grouped into portfolios, which may differentiate between large (or commercially material) and small projects. In many cases, briefer reports will substitute without loss of information even though they cover the entire portfolio of software development projects. The two base reports (financial and non-financial data) could be amplified by the inclusion of comparative data to enable progress to be tracked in terms of exceptions and trends. Since it is unclear whether graphical presentation is superior to traditional tabular formats (Maines, 1995), the latter have been provided.

The list of reports (which correspond to the six reporting panels in Table 2) is as follows:

1. A *financial report* (Table 2a) showing costs to date, projected total costs and projected total benefits. The financial report should be centred on a Work Breakdown Structure. Since the Work Breakdown Structure is completed as part of project planning, effort spent on unlisted tasks will require explanation. There is clear evidence that projects that are 'managed' without this detail are likely to fail (Charette, 1989; Chapman and Ward, 1997; Devaux, 1999).
2. A *non-financial measures of progress report* (Table 2b), presenting a selection of key indicators for tracking progress of software development projects. With regard to change requests, senior managers would expect prompt finalization. Some requests and rejections may be contentious and these would be registered in the 'conflict' section. Consistent with Kaplan and Norton (1996), the report contains lead indicators of project completion so it is forward looking.

Table 2

SUGGESTED FORMAT OF REPORTS TO SENIOR MANAGERS AND THE BOARD

(a) Financial report of progress on modules identified in work breakdown structure

Note 1	Approved budget value	Forecast	Actual	Variance
Outstanding work from previous period completed in this period				
Works scheduled for this period completed this period				
Outstanding work from current period				
Scheduled work next period			N/A	N/A

Note 1: Reporting detail will be provided by project and within project by defined module or requirement.

(b) Key non-financial measures of progress

Factor	Dimension	Measure	Count	Comment (Note 1)
Project variations	Scope change	Number of changes requested		
		Number of change decisions outstanding		
	Other changes	Number of changes requested		[Explain exceptions and alterations]
		Number of change decisions outstanding		
Project progress	Progress by phase	Against current phase		[State if ahead, on time, or behind]
	Release readiness	Against schedule		[State if ahead, on time, or behind]
	Issues	Number of new issues		[State causes, and alternatives]
	Risks	Number of anticipated risks		
		Number of unanticipated risks		
Conflict	– with client – within project team	[Explain reasons, significance]		

Note 1: Reports should include a short explanation and description of proposed remedial action.

(c) Milestone report (portfolio of major projects)

Project	Milestone	Completion dates				
		Baseline schedule	Latest authorized adjusted	Initial projected	Latest revised projected	Actual

Table 2

(continued)

(d) Unfavourable events report (portfolio of projects)

Project	Current *problem*	Prior risk *recognition*	Potential impact			Corrective action
			Cost	Schedule	Quality	

(e) Risk report (by project)

Risk ref	*Risk* description	*Key* business date	*Key* business event	*Project* deliverable	*Risk element*		*Risk response*				*Key* decision date	Recommendation
					User acceptance	Useability	Accept	Mitigate	Transfer	Avoid		

(f) Benefits realization schedule

Benefit ref	Benefit details				Benefit estimates				Variance		Realization forecast	
	Forecast benefit	Type of benefit	Method of obtaining	Manager responsible	Initial savings estimate	Feasibility estimate	Implementation *estimate*	Post *implementation*	Variance	Reason for variance	Date benefit is to start being realized	Adjustment proposed to next period budget
		Note 1	Note 2		Note 3	Note 4	Note 5	Note 6	Note 7			

Notes: 1. Possible categories include: revenue gain; savings achieved or outgoings avoided; appreciation of asset.

2. E.g., reduction in staff positions; reduction in overtime; reduction in casual/temporary assistance; procurement efficiencies; one-off revenue increase; *bring forward receipt of revenue; increases in recurrent revenue; one-off cost savings; postpone outgoings; reduced recurrent costs.*

3. Estimate from business unit provided as part of business case.

4. Estimate from feasibility study.

5. Estimate prior to implementation.

6. Actual identified during post-implementation review.

7. *Difference between post-implementation assessment and initial estimate.*

3. A *milestone report* (Table 2c) showing baseline, adjusted and estimated completion dates (with actual completion date to be noted for later reference). The milestone report records each authorized adjustment to the proposed completion date, so the impact of these decisions can be distinguished from lack of progress. In addition the milestone report requires an initial projection which is then regularly updated to provide senior managers with information that indicates the likelihood of the project running over time.
4. An *unfavourable events report* (Table 2d) should be articulated with the routine *milestone report*, to explain poor progress. Where the unfavourable events report lists problems overlooked in prior reports on non-financial measures and estimates of milestones, senior managers are then in a position to question the assumptions relied upon in the former.
5. A *risk report* (Table 2e) aims to present senior managers with an evaluation of risks, proposed responses, and deadlines for determining the choice of a course of action (recognizing that there is a range of acceptable risk responses [Standards Australia, 2004]). Risk is an unavoidable aspect of information technology. At the outset the risks considered include the opportunity cost of not proceeding and the relative merits of different options under consideration. Once a project is authorized, risks are associated with the continued availability of IT skills, availability of suitable human resources, and the schedule. Where a past risk report overlooked unfavourable events, senior managers may wish to consider the way it was prepared and hold staff accountable.
6. A *benefits realization schedule* (Table 2f) identifies who is responsible for the realization of benefits (generally, managers of business units). Project delays and cost overruns may affect the quantum of benefits available. This form of report may influence both the point at which benefits begin to be captured and the effort dedicated to their realization.

Use of these six reporting formats should provide senior managers and the Board with early warning signals about difficulties in software projects. Senior managers may then be in a position to initiate corrective actions.

Introducing additional reporting formats runs the risk of imposing costly and burdensome tasks to staff responsible for software development projects. However, if the reporting formats were agreed and established from the outset of projects as the critical senior management deliverables, the cost of maintaining records and providing up-to-date reports would be minimal since they would be part of the formal reporting regime. Consequently senior managers and Boards could reasonably expect these reports to be available 'on call'.

CONCLUSION AND LINKAGE WITH GOVERNANCE ARRANGEMENTS

It is contended that use of the set of reports in Table 2 deserves consideration by senior managers and the Board to ensure effective oversight of software development projects that are critical to business success. The proposition that Board-level involvement is appropriate when projects are initially proposed is not contentious. But the literature has not emphasized *continuing involvement.*

Continuous reporting is warranted, if for no other reason than to establish a discipline on business units and IT departments. While judgments about the need for Board involvement will depend upon the circumstances of individual firms and the industries within which they operate, the case for Board involvement seems particularly compelling if any of the following are present:

- a history of cost overruns and project failure in the business unit or the company as a whole;
- the authorized or proposed expenditure is material;
- the software is highly complex;
- deficiencies in the software under development will have adverse effects on the firm's trading capabilities or reputation.

For some organizations, the issues may warrant concentrated Board attention through the establishment of an IT Governance Committee—a practice that appears common in many public sector organizations, and has recently been advocated by a range of groups, commentators and professional advisers[8] (though often without a detailed analysis of the charter of such a committee). In this connection, it has been suggested that a Board dominated by directors who regard information systems and technology as a support tool will be inclined to relegate their supervisory role to middle managers, thus missing opportunities seized by their competitors (Carr, 2003). An Appendix to this article provides a suggested 'charter' which (following Walker, 2004, in respect of Audit Committees) is structured so as to distinguish objectives, membership, responsibilities, authorities and procedures.

A theme of this article is that improved outcomes may be achievable if an organization establishes monitoring arrangements and accountability mechanisms extending upstream to senior managers and the Board. The Board, for its part, has a responsibility to ensure that governance arrangements are established to safeguard a firm's resources. It is contended that the scale of many software development projects is so significant that governance arrangements should extend to ensure systematic upstream reporting on both financial and non-financial factors regarding the initial plans, budgets and subsequent progress of software development projects. Examples of such large projects would include integration of existing applications, application migrations as part of infrastructure revitalization, substantial application enhancement of existing capability or delivery, and outright core application replacement.

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[8] See, for example, IT Governance Institute, 2003; Hoffman, 2004, provides a summary of opinion and of recent surveys of the use of IT governance committees. One of these surveys noted that of 200 CFOs and IT executives surveyed in North America and Europe, less than 20 per cent of respondents had set up corporate or IT governance committees with formal membership and charters.

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APPENDIX A

GLOSSARY

Baseline	The budgeted cost of work to be completed in each period, representing planned performance when the project

	is approved such that changes require replanning (Devaux, 1999). Also refers to the functionality approved in the requirements.
Build decision	Analysis, design and development are completed by developers associated with the vendor (external) or are completed either by staff or by developers contracted to the organization (internal).
Buy decision	The package may include one or more modules. Core modules must be acquired at the outset. Other modules may be acquired on an 'as needed' basis. Modifications or enhancements may be commissioned.
Day 1 issues	Urgent or critical issues either preventing software being put into production, or necessitating scaled back operation (Healy, 1999).
Day 2 issues	Problems with inputs, processing or outputs, reported as incidents, which only become apparent after the software has been put into production (Kit, 1995).
Defect	A deviation from specified requirements (Whitten, 1995).
Enhancement	A special class of adaptive maintenance either increasing or removing functionality (von Mayrhauser, 1990).
Maintenance	Maintenance (following use of this term in the antitrust court order on IBM—see Jones, 1998) is regarded as the repair of defects, also known as corrective maintenance. Changes to the system environment may require adaptive maintenance, while eliminating inefficiencies in existing functions may be termed perfective maintenance (von Mayrhauser, 1990).
Migration	Moving from the current to the new system. This may be achieved through immediate or phased conversion or parallel operation (Marciniak and Reifer, 1990).
Module	A complete set of instructions to execute a related set of tasks with a defined single entry and exit point (von Mayrhauser, 1990).
Milestone	A significant event at which progress is measured—it may be either the completion of a significant portion of work or achievement of a key element of the project (Buttrick, 2000).
Post implementation	A review to determine (a) whether expected benefits are being delivered, (b) if return for the level of expenditure is reasonable, (c) competence of implementation including suitability of Project Manager, and (d) what has to be done to reap sufficient additional benefits (Lincoln and Shorrock, 1990).
Production	The software is in day-to-day use by end users (IEEE, 1990).
Requirements	A precise expression of what is required by a viable solution, allowing the finished software to be evaluated.

Schedule	A timetable at two levels, summary and detail. The summary states the activities to be performed, dates of check and review (milestones), time constraints and interdependencies with other projects (Buttrick, 2000). The detail specifies allocation of resources and assignment of responsibilities.
Testing	Procedures and processes to discover errors (Myers, 1979).

APPENDIX B

A MODEL CHARTER FOR AN IT GOVERNANCE COMMITTEE

OBJECTIVES

To ensure that the entity's expenditure on information systems and technology is cost-effective and delivers value to stakeholders.

To ensure that information systems meet the defined needs of the organization and its customers.

To ensure that there is security of data and adequate protection of information systems.

MEMBERSHIP

Members shall be appointed by the Board for a limited period and shall not automatically be re-appointed. The Board may engage outside experts to strengthen the committee (either as members or advisers).

AUTHORITIES

The IT Governance Committee (Committee) shall be provided with secretarial and other services to enable it to perform its functions.

The Committee has the authority to require members of management or others to attend meetings and to provide advice or information.

The Committee has the authority to access the entity's documents and records.

The Committee shall have access to legal or other specialist advice, and may engage independent technical experts to provide advice or to conduct investigations.

RESPONSIBILITIES

Generally

To ensure that management has clearly articulated plans for the entity's existing and proposed investments in IT (including architecture plans, infrastructure acquisition and maintenance plans, software acquisition and development plans, prioritization criteria and security over access, documentation of processes and data).

To ensure that management has documented arrangements with stakeholders for agreed levels of service, standards of performance and remedies for non-performance corroborated by documented agreements with vendors regarding support arrangements.

Expenditure and Realization of Benefits

To ensure that management has documented arrangements with vendors concerning development, and whether developments funded by the entity are to be absorbed into mainstream products.

To monitor management's plans for the realization of benefits associated with approved projects.

To establish the criteria for the acceptance of software development proposals having regard to affordability, financial and non-financial costs and benefits throughout the organization, potential synergies with other proposals, and potential competitive advantage.

To review the business case for proposed investments in IT, and to monitor IT projects against original budgetary submissions to ensure that expenditure is controlled and that the costs and projected benefits of proposed projects are evaluated regularly until completion or cancellation.

To consider the business case for the modification of applications, including modifications undertaken in terms of maintenance contracts with vendors, using the same criteria as for new applications.

To monitor realized benefits against forecast and investigate the adequacy of explanations of variances.

Standards, Risk and Compliance

To approve adoption of standards and policies for information systems and technology.

To periodically commission an assessment of the adequacy of arrangements for the protection of systems and data against intrusion.

To ensure management has an up-to-date assessment of the risks associated with infrastructure and technology investments and the financial status of preferred vendors and to monitor those risks.

Performance Responsibilities

To review or develop key performance indicators relating to the application of IT within the entity.

To commission post-implementation evaluation reviews of completed projects including the annual test of the disaster recovery plan.

To annually assess the Committee's own performance and review its charter.

PROCEDURES

Attendance

All directors who are not members of the IT Governance Committee shall have the right to attend meetings.

Standing invitations to attend all meetings of the Committee will be extended to the chief executive officer, the chief operating officer, the chief IT officer and the chief financial officer.

The external auditor shall be invited to attend all meetings (though not necessarily for all agenda items).

The internal auditor shall be invited to attend meetings, as appropriate.

Meetings

The Committee's secretary shall propose a schedule of IT Governance Committee meetings to ensure that all of the Committee's responsibilities are addressed during the financial year.

Meetings may be called by the chair of the Committee, or at the request of the chair of the Board.

The Board shall appoint an executive to act as secretary to the Committee. The secretary shall (in conjunction with the chair) be responsible for:

- drawing up the agenda, supported by documentation, and circulating that material to Committee members prior to each meeting; and
- preparing draft minutes of the meetings of the IT Governance Committee, and circulating minutes to members of the Committee and the Board.

The secretary shall provide draft minutes of meetings and provide them for review by the chair of the Committee within ten working days.

Minutes shall be accompanied by an 'action plan' detailing matters that require attention and the responsible officer, as the result of the Committee's deliberations.

The Board shall be provided with minutes of IT Governance Committee meetings at its next meeting (and oral reports of any meetings for which minutes have yet to be prepared).

Submissions

Business units may make submissions to the Committee.

Review of Committee Performance

The Committee shall review its performance annually, with particular attention being paid to the extent to which it has met its responsibilities in terms of this charter.

Publication and Review of the Charter

The charter shall be published in the annual report, or made available on the entity's web site.

The charter shall be reviewed and updated annually, initially by the IT Governance Committee and then by the Board.

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FRANCESCO CAPALBO AND FRANK CLARKE

The Italian Economia Aziendale and Chambers' CoCoA

At first glance the Italian accounting tradition of Economia Aziendale and Chambers' system of *Co*ntinuously *Co*ntemporary *A*ccounting (CoCoA) appear extreme opposites. The *ex ante* financial calculation of *distributable income* drawing on the net present values of the aggregative net assets in the former, and in the latter a system of accounting for an all-inclusive income with the separable assets measured in terms of their current cash equivalents, appear irreconcilable, unlikely bedfellows. But the International Financial Reporting Standards present a system using separable and aggregative assets' fair values and calculations of their net present values in assessing asset impairment. Whether Economia Aziendale and CoCoA are indeed so opposed deserves renewed examination.

Anglo-American accounting, of which expositions of CoCoA are part, is said to lack a business economics tradition of the kind said to justify Economia Aziendale. This stands in stark contrast with European traditions manifested in the Dutch *Bedrijfseconomie*, the German *Betriebswirtschaft*, and the Italian *Economia Aziendale.*

This article seeks to understand that absence by contrasting—the Economia Aziendale framework and accounting theory developed in the Anglo-American tradition. The primary elements of space and time coordination—the lynchpins of the pure theory of the azienda (the core of Economia Aziendale)—are generally regarded as missing in the Anglo-American tradition. But the original construction of Economia Aziendale leads to the generalization that any attempt to determine a firm's value or to measure and analyse its performance during its lifetime would result in an unacceptable interruption of the space and time coordination, and yield unreliable results.

Curiously, the analysis here exposes an unexpected complementarity of Chambers' CoCoA and some postulates of the pure theory of Economia Aziendale. The theory that has been only partially acceptable to the Anglo-American profession (namely its use of market [fair] values) emerges as highly compatible with the most theoretically extreme in the Italian tradition.

Key words: Accounting; Chambers; CoCoA; Economia Aziendale; Exit prices; Fair values; Net present values.

Relatively recent Anglo-American literature notes a lack of any relationship between accounting and business economics in the Anglo-American tradition

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(Viganò, 1994; Napier, 1996; Zambon and Zan, 2000, p. 800). A research forum published in the *European Accounting Review* (1996–98) stressed that claim by comparing some of the European business economics traditions (Zambon, 1996; Viganò, 1996; Napier, 1996; Nasi and Nasi, 1996; Bouma and Feenstra, 1997; Julve, 1998) with perceptions of the underpinnings of the Anglo-American tradition.

Discerning the sense in which 'accounting and its relation with economics could be said to be different in a business economic context' (Zambon, 1996), the forum stressed that a more intimate relationship between accounting and the theory of the firm was drawn in European accounting. There, the analysis of the firm goes beyond the definitions of it being an accounting entity (so often present in the Anglo-American context) in order to set the 'orientation' of the accounting process (Zeff, 1978) and its boundaries (Sprague, 1908; Paton, 1922; Vatter, 1947; Staubus, 1959; Li, 1960; Meyer, 1973; Ball, 1988).

In some European traditions the characteristics of the firm are believed to have influenced significantly the development of accounting and its conceptual framework, although there has been minimal impact on practice (Zambon, 1996, p. 404). The *coordination* of the Italian azienda the continuity of the Dutch bedrijf and the organic notion underpinning the German betrieb, are examples of a firm's perceived characteristics that have highly influenced and substantially oriented accounting thought in those countries. In contrast, it is said that the Anglo-American accounting literature has paid minimal attention to the connections between the nature of the firm and accounting, and 'to the possibility of relating the underlying abstract theory to a set of rules and conclusions useful for present-day practice' (Van Seventer, 1969).

But the *European Accounting Review* forum noted that these conclusions cannot be extended to the entire Anglo-American literature. We concur. Chambers, for example, in his logical and systematic interpretation of accounting depicted the firm as 'a datum, the particular features of which must be taken into consideration in framing an appropriate information-providing system' (1955, p. 20). Yet, notwithstanding such similarities, he reached conclusions as to the architecture of the accounting model quite distinct from those proposed by academics devising accounting systems appropriate for the *Betriebswirtschaft, Bebrijfseconomie* and *Economia Aziendale.*

The recently launched R. J. Chambers Collection[1] provides evidence that Chambers studied closely the relevant foreign literature in some depth. Given the particular intensity of Chambers' interest in Economia Aziendale,[2] and the amount of personal correspondence he had with Italian scholars and their journal editors, the main similarities and divergences of his CoCoA model (with its recourse to incorporating the effects of changes in the separable assets' selling prices and price levels) and the accounting model developed within Economia Aziendale (with its recourse to the net present value *of the firm*) deserve analysis.[3]

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[1] While browsing the personal library of the late Raymond John Chambers it is common to find English translations of foreign books illustrating Betriebswirtshaft, Bebrijfseconomie and Economia Aziendale. Of particular interest was his exposure to the last. This was definitely peculiar for an English speaking scholar during the 1950s–1970s, as shown by this extract from an *Accounting Review* book review about the Italian Accademia Nazionale di Ragioneria. It explained the peculiarities of the Economia Aziendale discipline as: 'a) of little interest for Americans; b) adding nothing to accounting literature; c) too broad in its object; d) of no use for further research' (Chatfield, 1982). Chambers, instead, was an honourable member of the Accademia Italiana di Economia Aziendale from 1980 until his death in 1999. The R. J. Chambers Collection and his correspondence files are referred to here as the R. J. Chambers Collection. It is available in hard copy form from the Archives Unit at The University of Sydney and the website address for the digitised version of the Collection is: http://chambers@econ.usyd.edu.au. The Collection was officially launched on 15 November, 2004. Footnote 25 provides further details.

The relevance eventually given to Chambers' perception of an entity's 'financial position' and the assessment of 'solvency' in affecting its capacity to adapt resulted in an accounting model which many regard as being poles apart from that developed in Economia Aziendale. Yet, arguably, Chambers' CoCoA is compatible with the main characteristics the Italian discipline generally attributes to the firm, and offers information that complements, rather than contradicts, the purest model of Italian accounting. The two systems, both of evident logical soundness and sharing some similar starting postulates, lead to complementary pieces of information of extreme relevance—from Economia Aziendale, the economic capital of the firm; and from CoCoA, the necessary means for the assessment of its solvency. These are embedded in two undoubtedly different financial statement models.

The analysis here offers more support to the proposition that the main limit of the accounting lies in an excessive quest for information to be provided in a single set of financial statements (Sterling, 1979). This is especially so in a commercial world that increasingly relies on indicators of solvency, using regulatory frameworks that increasingly seek fair value information (see the FASB 'Fair Value Measurement' project: FASB, 2004).

ACCOUNTING WITHIN ECONOMIA AZIENDALE

Italian accounting, originally free from the urgency to develop practical rules guaranteeing verifiable and comparable financial statements for use by external stakeholders, developed as part of a wider discipline intended to capture *all the economic aspects* of a particular kind of an economic entity—the azienda. The discipline of Economia Aziendale is concerned with the study of the azienda's management, accounting and the organization, underpinned by the belief that no reliable accounting system can be designed without having a sound knowledge of its operations and the way it is organized and managed. The information obtained by a proper accounting system is seen to be the means by which to improve that knowledge.

The azienda is thus a prius, and its definition delimits the boundaries of the discipline; it is a coordination of economic operations in which individuals and wealth are vital components (Zappa, 1927, p. 40), an organization of persons and parts (Viganò, 1998). Importantly, not all the organizations are believed to be azienda, not all are within the focus of Economia Aziendale. The azienda may, of course, assume different forms and perform different processes. Nonetheless, it retains a level of economic generality sufficient to develop a fundamental unitary discipline, the postulates and laws of which may be applied to every kind of azienda—profit-oriented or not, incorporated or unincorporated, publicly or privately owned, operating in the insurance, banking, manufacturing or whatever other industry (Viganò, 1998, p. 393).[4]

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[2] His interest led him to maintain correspondence with the editor of one of the principal Italian accounting journals and to publish a long debate about financial statements measurements with one of the main Italian scholars of the last decades, Pietro Onida (see Chambers, 1973).

[3] Based on his works and achievements, Chambers has been described in the accounting literature as: 'an intellectual giant', 'one of the few giants of contemporary accounting thought', 'a great thinker', 'truly a Renaissance man' (respectively: Mathews, 1982; Barton, 1982; Edwards, 1994; Galassi—private correspondence, 1999).

As the azienda is to be the object of the stream of accounting information to be produced by accounting, outlining its distinguishing common features is essential to the development of consistent general laws (Zambon and Zan, 2000, p. 802). The accounting system to be used inherits the characteristics of its object (Airoldi *et al.*, 1989, p. 344) and being shaped by them is, in turn, properly applicable only to those economic entities sharing such common characteristics.

While substantial changes have occurred in the way commerce is conducted since the origins of Economia Aziendale, the core business features entailing the interrelated nature of accounting and finance, organization and management persist.

The evolutionary process of academic thought explains the emergence in the Italian literature of different definitions of the azienda's distinguishing characteristics.[5] Despite that evolution, general agreement has persisted regarding key distinguishing features of the azienda, and especially so in respect of those usually claimed to have most influenced Italian accounting, or at least its literature. The economic entity studied by Economia Aziendale is unitary, perceived to undertake its operations in a manner highly coordinated in both time and space; it has an in-built tendency to continue in the future.[6] This perspective has influenced the nature and the role of Italian accounting,[7] especially its measurement theory.

The Influence of Azienda's Coordination and Continuity on Italian Accounting, Consumable Income and Economic Value

Being unitary and a going concern, the azienda's operations are intimately 'coordinated' in both time and space, to comprise an indivisible flow. Conceptually, an interim result therefore may not be calculated, for that would imply an interruption of time coordination. Any attempt to determine a firm's value periodically, to measure its *periodic* performance at intervals during its lifetime, would result in an unacceptable interruption of the coordination, inevitably yielding abstract or conjectured quantities.

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[4] This definition is the outcome of the work of the 'School of Naples'. Nonetheless other very valuable opinions exist according to which the azienda is seen as the economic order of the institution, whatever institution it is (Masini, 1970).

[5] For a quick list of the definitions of azienda provided in the Italian Literature see http://www.ea2000.it.

[6] 'Tendency to continue' has been preferred to the most used 'going concern', for whereas the former is intended as a qualifying characteristic of the object of accounting, the second is, in the Anglo-American practice, more often intended as an operating hypothesis (Capalbo, 2000). However, for the sake of simplicity in the following paragraph the two terms will be used interchangeably.

[7] A further characteristic is sometimes added: autonomy. This may also be seen as a condition that enhances this ability to continue over time, rather than a characteristic, as well as a prerequisite, to distinguish an azienda from another. That is, an economic entity to qualify as azienda should present an ability to last without external systematic support (Airoldi *et al.*, 1989).

Whereas those principles have remained the essence of Italian accounting theory, practical exigencies have necessitated and induced compromises. Time coordination was broken and an idea of an annual approximation of the firm's performance was tolerated. The performance of an azienda is intended to be measured in terms of income. Its intrinsic value is a function of the ability to generate future income.[8] Notwithstanding the empirical choice of the interruption, the azienda is still naturally coordinated. The end of the year will show an ongoing continuous, unique stream of operations. The expected income flow to be generated by such a stream is therefore *unitary*, and its present value is thus a lump-sum value whose variation over the year can be appreciated in purely *quantitative* terms.

Consistent with a systemic and organic vision of the firm, the most compliant determination of periodic income would be measured as a *quantitative* value by the difference between the net present value of the firm, known as economic capital, at the beginning and the end of each period. Frequently an amount is depicted as the economic concept of income.[9] That this value is theoretically the only value that proponents of Economia Aziendale consider properly assignable (accounted for) to a firm reveals the strong link with economics. Thus, particular attention on income in Economia Aziendale, rather than capital, is explicable (Poli, 1971).[10] The annual income and capital thus obtained will then be dependent on *the future* rather than *on the past* or the *present*, on what is intended rather than on what *has* been done (Potito, 1988). In Economia Aziendale what is going to happen in the future is critical, for this is what gives value to the firm. Any income figure assigned to a single year has to be of such an amount as will not impair, through the distribution process, the firm's ability to produce a level of income in the future such as to guarantee a satisfactory (*normal*) repayment of the invested capital as measured by its accounting value.[11] This condition is satisfied whenever the income is determined as the variation in the economic capital *or any other lower amount* (De Gobbis, 1925; De Minico, 1935; Viganò, 1967; Onida, 1974; Capaldo, 1999).[12]

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[8] Several reasons certainly backed this choice, but relatively little effort has been made in the Economia Aziendale literature to explain its relevance, and especially the reasons to prefer it to the use of cash flows. It is likely that the impossibility to smooth cash flows is an important factor.

[9] Actually, Chambers questioned the identity between the economic concept of income and *ex ante* income. Indeed Chambers (1991, p. 57) provided evidence of the existence also of an *ex post* concept of income in the economics literature (Simons, 1938, p. 49; Meade and Stone, 1941, p. 219; Haig, 1959, p. 59).

[10] Consider the following. 'It seems fine to describe economic income as based on the present value of future receipts' (Philips, 1963, p. 59); 'For the owner of the assets, net income for a period is the difference between the economic value (sum of the expected net receipts) of the assets owned at the end of the period [and] their economic value at the beginning of that period . . . [adjusted] for assets added or withdrawn during the period' (Benston, 1982).

[11] Staub (1900) notes this idea of capital maintenance was already quite widespread in the German legal literature at the end of the nineteenth century.

An accounting model based on this concept of 'consumable' income would present several practical implementation problems. A 'one act determination of the economic capital would be extremely complex' (Viganò, 1967, p. 110), while the consequential annual reports prepared on that basis would clearly not be a means for deriving many of the financial characteristics of firms traditionally used in the periodic evaluation of their wealth and progress. Nor would they give any idea on how the assigned income was obtained (Rossi, 1965; Provasoli, 1974).

The Use of Net Present Value to Measure Individual Assets and Liabilities of a Coordinated Going Concern

A second compromise has also been necessary. Practical needs pressured retention of the space coordination. Typically at year end, firms will have a set of integrated, rather than a stream of separate, ongoing operations, each of which is expected to produce a portion of the expected income that will give value to the firm (Coda, 1965, p. 44; Masini, 1970; Onida, 1974, pp. 66–8; Provasoli, 1974, p. 220). Adding a *qualitative* dimension in the expectations of future income produces a *qualitative* expression of the capital of the firm. Whereas operations completed in the year have resulted in monetary assets and liabilities, assessment of the ongoing operation's costs and revenues is expected to generate results in reported balances of non-monetary assets and liabilities. Indeed, the same logic supporting the determination of the economic capital leads one to attribute a net present value to non-monetary items resulting from the observed ongoing operations so determined. This is 'to leave the future years with a positive margin such as to cover further cost to be incurred up to the definitive realization and to adequately repay the invested capital' (Onida, 1974).[13]

Notwithstanding the practical convenience of this solution, it would lead to the same concept of income described above, were it possible that the economic capital of the firm could be spread properly over the single items constituting its accounting capital. In the functioning of the modern firm, unravelling such a spread is generally considered an impossibility. This is particularly the case with non-monetary assets and liabilities, for the attribute being measured—the net present value of a single capital item (a particular expected net income flow from a specific asset)—is generally not an outcome exclusive to it. Invariably assets are used in conjunction with one another, in *sets* (networks) rather than by themselves, to produce net cash inflows. The measurement function is not properly applied, nor does the accounting model that operates in practice properly reflect any more the theory of the firm of Economia Aziendale or, at least, one of its main postulates, the element of 'coordination'. The logical consequence is the absolute inability of any summation of net amounts attributed to separate assets to express the firm's economic capital.

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[12] The economic capital is obtained by discounting the future expected income flow at an interest rate expressing the cost of capital; it can be considered satisfactory or, as usually depicted in Economia Aziendale literature, 'normal'. Given the built-in tendency of the firm to continue in the future: (1) *Economic Value = Future Expected Income/Normal Rate.* Therefore, future expected income will be up to a satisfactory percentage of the accounting value, just as long as the latter does not exceed Economic Value. Indeed when Economic Value = Accounting Value, substituting from the (1) we have (2) *Future Expected Income = Satisfactory Rate*Accounting Capital.* This idea of capital maintenance was already in Besta (1891).

[13] Again, analogies with some economics perspectives are evident. Consider this quotation from Alexander: 'The very basis of economic income is present value of future receipts . . . [which] although unknown are the most important measure of the value of an asset, and so the most appropriate basis for the determination of income' (1950, p. 59).

Thus, in the Italian accounting literature there was acceptance of those single accounting figures so long as their total sum did not exceed the amount of the economic capital (De Minico, 1946; Masini, 1955; Amodeo, 1955, 1964; Amaduzzi, 1955; Cattaneo, 1965; Ferrero, 1968).[14] If not, appropriate corrections were required. The greatest concern was to avoid accounting capital exceeding economic capital. Any excess, not finding a confirmation in the expected income, cannot be considered as a value at all, but rather, was referred to as effectively just 'water' (Amodeo, 1964). Less serious consequences normally pertained when the aggregated accounting values were significantly lower than the economic capital. And as such a condition was intended to protect against the distribution of unrealized earnings, it was even advocated to achieve that end by the making of adjustments to discretionary items. Nonetheless, both under-valuations and over-valuations would produce misconceptions regarding the relationship between the accounting values and the economic capital.

For some authors the predominance of an organic approach in Economia Aziendale was stressed in order that the 'corrections' did not need to be disclosed, but could directly affect the separate values assigned to individual assets and liabilities. A commonly shared belief of academics was that amortizations and provisions should be inflated in the prosperous years to facilitate deflation in the leaner years. An income smoothing (earnings management-type) policy in implementing the amortization process was strongly advocated, so long as it resulted in a 'better' protection of future income. The so-called 'irregular methods' of amortization were strongly recommended (Amodeo, 1964). As the azienda, by its own nature, is intended to continue over time, its performance can be comprehended, provided the measurement process is not rigidly linked to the elapsed time lag from the beginning to the end of a given year. It is the concept of time itself that has to be adapted to the natural length of an azienda's income generating process, rather than the measurement of the results of this process to be set over the legal duration of the year (Onida, 1974). Borrowing the terminology from the interim financial statements debate, use of an *integral* rather than a *discrete* approach has been strongly advocated.

Even where tolerated, the separate measurement of individual assets and liabilities, has not been given much importance—rather, it has been suggested that

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[14] An interesting, and in many respects similar, discussion of the difference between the capital value determined as a whole and the one determined on an aggregate basis may be found in other European accounting literature, particularly the Danish (Kristensen, 1944, p. 16; Hansen, 1962, pp. 39–43).

mobile figures had significance, only insofar as components of a *whole system* are the critical focus (Viganò, 1981). The financial statements that Italian accounting scholars had in mind were indeed *internal documents*, which *independently from any particular user's needs* sought to express the ability of the azienda to continue in its autonomy over the long term in a *variable* environment (Airoldi *et al.*, 1989). Such an ability is normally presumed to exist, so long as the firm is expected to produce a level of income able to repay both the risk and the cost of capital invested.[15]

With that intention, financial statements could not be tied to strict accounting standards. Of necessity they had to rely especially on estimations and expectations (Zappa, 1950; Onida, 1974). This, of course, lessened attention on prescribing detailed measurement criteria. Such an approach could survive unhindered as long as the demand in Italy for externally imposed accounting standards did not arise (Poli, 1971). In more recent times with a global economy dominant, general-purpose financial statements of most large companies *are* being used by outsiders and insiders. Hence, the statements have to be neutral, verifiable and comparable in both intra-firm and inter-firm settings.[16]

Accordingly, values assigned to the single capital items have gradually acquired prominence in the Economia Aziendale literature. A compromise solution has emerged. It entailed using equity reserves to 'park' accumulations of all the adjustments that the organic nature of the firm would require (Ferrero, 1968; Dezzani, 1981; Capaldo, 1981). This would preserve the notion of reported income based on accepted measurement criteria. It would produce a distributable income metric capturing all the adjustments deemed necessary to guarantee the maintenance of capital,[17] in Economia Aziendale terms. The European and now international pressures for standardization and harmonization have facilitated the dominance of this perspective (Zambon and Saccon, 1993; Viganò, 1998).

It is suggested that a net present value accounting model of the Danish Palle Hansen (1962) variety would thus offer the most reasonable approximation to the direct determination of economic capital. This is because it applies the same concept of value based on discounted expected income to individual assets and liabilities. But as the income is deemed to be realized just at the moment of exchange in the market (Zappa, 1950), net present value is used properly as an upper limit for assets (or lower limit for liabilities), rather than an unequivocal criterion, making the approximation even rougher, and the potential difference between the accounting and the economic capital of the firm even greater. The purchase price of an asset is arguably lower than the purchaser's estimate of its net present value at the time of the exchange. Stating assets at their cost in the historical cost model exposes the predilection in extant accounting to not record such an estimate. Further, as there is most likely an indeterminate cluster of assets contributing to each income stream (and therefore responsible for the economic capital of the firm), self-generated assets (intangibles—such as know-how, intellectual capital, for example) and assets acquired through non-reciprocal transactions do not incur an identifiable purchased cost and generally remain apart from the financial statements data.[18]

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[15] When this happens the income, being a residual, implies the satisfaction of all other stakeholders and, therefore, reliable expectancy of duration. It is of course possible that in some kinds of azienda—namely those not oriented to profit, to the repayment of risk and cost of capital, and often of the workforce as well—income cannot be expressed in terms of monetary income. Here this will only create a problem in terms of measurement rather than a rethinking of the theory.

[16] This would appear to be the *raison d'être* of those advocating IFRSs.

[17] Perhaps surprisingly, a similarity again is to be found in the Danish accounting literature. Indeed, Hansen (1962, p. 43) suggested including in the balance sheet an item, 'adjustment of the net worth, which bridges the gap between the two valuation principles [capital value determined as a whole and capital value determined on an aggregate basis]'. And the Dutch and German inflation capital adjustment reserves had been proposed in the 1920s to account for the effects of the hyperinflation (see Clarke and Dean, 1986).

Compromise to the *pure* theory of Economia Aziendale has established a sacrifice of theoretical postulates in order to satisfy the need of information that is serviceable in practical day-to-day operations. This produced an arrangement of data that neither satisfies the objectives of the pure aziendale theory nor the day-to-day practical information requirements of firms operating in a modern economy. It appears that the 'fair value' thrust in many local standards and in the International Financial Reporting Standards is a possible means to bridge that gap. And, arguably, that some of those standards may have had their genesis in the idea of value reflecting *coordination* to amend the data reported in the balance sheet. Accounting for the impairment of long-lived assets included in a Cash (Income) Generating Unit (IAS 36, FRS 11), where the 'value in use' of the reporting unit rather than of the single asset is used to determine the existence of impairment,[19] is a case in point. This invites consideration of the possibilities of:

1. Rethinking of the actual information potential of financial statements within the wider decision making process (Chambers, 1966; Sterling, 1979; Viganò, 1972; Capaldo, 1981); and
2. Reconsidering the opportunity of sacrificing the theoretical postulates, by setting a new information system properly reflecting the characteristics of the firm, even if this may mean either breaking some well established beliefs embedded in a rich tradition or transcending the boundaries of the traditional 'accounting' financial statements.

The Solvency Issue

In order to defend the *normality* of future income, net present value calculations relating to the *firm's* operations do not entail assigning capital values to individual non-monetary assets and liabilities. This obscures a presentation of their separate financial characteristics (Onida, 1974). While most Economia Aziendale scholars have concentrated more on the economic dimension of the firm, some have studied the financial information relevant to the assessment of its financial characteristics at single points in time and the evaluation of its sustainability over time. Even then, however, traditionally in most cases they have undergone revisions and reclassifications of financial statement data.

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[18] Against that background, it should again be kept in mind that both under-valuations and over-valuations would produce misconceptions regarding the relationship between the accounting values and the economic capital.

[19] As the income generating unit tends often to coincide with the business itself the 'the impairment review required by FRS 11 . . . has the effect of making the review a business value test' (Paterson *et al.*, 1999, p. 789). In other words we have something not very far from the use of economic capital as an upper limit to the accounting value of capital that we have seen typical from the Italian accounting literature.

Solvency, a major focus in the analysis by lenders and investors of conventional Anglo-American financial statements, is a condition precedent for continuous long-term economic perspectives.

The azienda, being (by definition) a *going* concern, implies its continued solvency. Economia Aziendale, perhaps, has been presumed to have already sorted out the solvency problem. That is, to survive in the long term necessitates that the azienda has paid its way in the past, and would have maintained its capacity to pay its debts in the future as, and when, they fell due. But such an implied sustenance of solvency within Economia Aziendale calculations may have the potential to divorce Italian academic accounting thought and related theory from firms' practical day-to-day needs. Although the link between short-term solvency and going concern was not ignored in the Italian literature, analysis of the former and of its relation with profitability has not received sufficient attention (Coda, 1987).[20] Even where that omission is consistent with the relative absence of demanding users in the Italian accounting environment,[21] a contributing factor may be the perceived impossibility of giving a rational answer to such a problem in a single set of financial statements already overwhelmed with myriad roles and functions. Coda (1987) observed that, irrespective of reliability of data within the financial statements, the assessment of the solvency of a firm cannot ever be based solely on those data. A single set of 'accounting' financial statements does not contain all the information relevant to solvency assessment, especially when the capital values are assigned in order to defend the *normality* of future income. Rather, solvency is determined by an organic analysis of both numerical and qualitative information over the economical, financial and dimensional aspects of the firm. In British insolvency law this has manifested itself in debates and the relative merits of 'balance sheet' and 'cash flow' tests of solvency. In the latter test, predicting from the evidence of a statement of financial position at a point in time, to capture cash flow implications of expected future operations, is obviously (though not exclusively) Economia Aziendale territory.

Against that background there is the nagging implication of positive economic valuations implying a firm's continuous solvency—that embedded in the Economia Aziendale valuations are assumed collections of resources (monetary and non-monetary) from time to time that may be applied not only to the production of future net income streams, but also to produce the cash flow with which to discharge debts. Arguably, data representing the potential of the individual assets to contribute to the discharge of debts are complementary to the Economia Aziendale valuations. Without it, managers would have no guide as to which assets to retain to maintain the income stream and which to use to discharge debt.

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[20] Interest over assessment of solvency has increased in Italy and in Europe as well. The High Level Group of Company Law Experts (2002) issued a document advising the use of the solvency test to provide the creditors with a better protection than the one they currently obtain through the legal capital.

[21] A similar limit is said to apply to American accounting thought (Heath and Rosenfield, 1979), where demanding financial statements users certainly exist.

CHAMBERS' CoCoA

In contrast with the economic income focus that underpins the accounting within the framework of Economia Aziendale, Chambers' CoCoA aims to provide financial data indicative of an entity's dated financial wealth and periodic financial progress. These data provide an indication of an entity's capacity to adapt. Their formulation is in response to the observable uses made of the data drawn from financial statements and the agreed characteristics of the financial indicators habitually derived for the purpose of assessing and evaluating entities' salient financial features.

CoCoA seeks to reveal financial information that is *generally relevant* to the myriad parties interested in the financial affairs of business entities.[22] To that end, it was devised to facilitate the disclosure of, in particular, *financial position* at dated points in time; *income* earned between, and resulting in, successive established dated financial positions; the *nature*, *composition*, and the contemporary money's *worth* of a firm's separable assets and the amount of its individual liabilities. Through the injection of an adjustment for changes in the general purchasing power of money, the calculated periodic income or loss is thus an explicit amount of current general purchasing power (Clarke and Dean, 1996).

Solvency and Going Concern Assessments

Chambers explained in numerous places his observations of the manner in which the data in financial statements were the basis of financial instrumentation. They were used to determine the financial characteristics of firms—their periodic profit and losses, financial position at specific dated times, rate of return, capital gearing, asset backing, solvency, liquidity, gearing, debt to equity and the like.[23] His observation was that these financial characteristics of the wealth and progress of firms were used invariably to assess whether particular firms were likely to remain *going concerns*, and indeed (it might be said) were they likely to meet one of the primary Economia Aziendale criteria, and if so what their individual capacities were for adapting to changing economic conditions, changing investment opportunities, and changing financing opportunities.

There is little room for dispute that the data in the general-purpose financial statements of firms are used in that fashion. Nor that they are somewhat dictated in the Anglo-American tradition by the nature and financial reporting requirements of companies legislation, and more recently in the 'fair value' prescriptions within many professionally endorsed accounting standards. In various forms and combinations, dated balance sheets (statements of financial position) and income statements (statements of financial performance) have been specified as the minimum financial disclosures by companies as part of the *quid pro quo* for receiving incorporation, since the U.K. Companies Act of 1844.[24]

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[22] Consider the debate between Demski (1973) and Chambers (1976) about the (im)possibility of a normative accounting standard.

[23] Consider Chambers *et al.* (1987, p. 17), especially the diagrammatic illustration of the meshing of these indicators.

The habitual use of the companies' published data to determine their individual financial wealth and progress (or regress), or for deriving their salient financial characteristics, is undeniable. The financial press is replete with references to such things, the intra- and inter-firm comparisons in which they are employed, commercial agencies and the stock exchanges produce and sell their calculation of the various financial indicators, and many companies include decade-long summaries of the same in their annual reports. It is a well-established part of the disclosures made and the *external* evaluation process of companies' affairs.

Whereas the product of that general-purpose use is *different* in form and structure from the product of the 'pure' Economia Aziendale accounting, it is not in conflict with the overall objective of Economia Aziendale. *Difference* neither implies nor necessitates contradiction. Rather, it implies the possibility of complementarity. A frequent complaint levelled at Anglo-American type financial statements is that they do not show the value of the firm.

CoCoA addresses micro-features of the azienda relevant to the day-to-day, period-to-period, assessments of the financial structure and progress of a firm made by various users (creditors, other investors and regulators in particular)—financial features, that are critical to their evaluation of the reasonableness of the information that accounting in the Economia Aziendale tradition would produce. We would also argue that the overall economic capital of the firm calculated in the Economia Aziendale tradition is a function of its periodic financial position calculated in the CoCoA fashion, for without an understanding of the firm's financial position at a particular point in time, the financial resources and obligations it has, assessment of likely changes therein is impossible.

Such complementarity is illustrated by the relevance of the CoCoA-generated data to assessments of solvency and the obvious link between solvency and going concern.

Solvency and Going Concern

In the final analysis, virtually all the conventional components of financial ratio analysis are directed to identifying those features of a firm's financial structure that enhance or threaten its capacity to continue in business. Critical to a firm continuing in business is its ongoing capacity to pay its debts as they fall due. In that setting, solvency assessments are, arguably, the most critical of financial indicators. While there have been instances of companies embarking upon borrowing campaigns and using the proceeds of successive rounds to meet the repayment of earlier rounds, that so-called Ponzi-type process eventually comes to an end (Clarke *et al.*, 2003). Indeed, borrowing covenants are intended to ensure that it does. It is thus no accident that in the investigations into major company failures (for example, multi-billion dollars collapses of Parmalat in Europe, HIH in Australia, and [say] Enron and WorldCom in the United States), a matter of critical importance has been identifying the precise times at which those companies had lost their capacity to meet their debts when they became due, who knew or should have known of it and when. That has always been the case (Clarke *et al.*, 2003). Without a determination of solvency, evaluation of whether a company is likely to be a *going concern* in the future is impossible—judgment on the matter absolutely uninformed!

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[24] 7& 8 Vict. 1844.

No assessment of solvency can be determined other than by comparing the companies' financial resources with their debts, taking into account the reasonable understanding of how those resources might change in parallel with the time when some of the debts become due for payment. As the example below demonstrates, many of the data produced under the conventional historical cost system are clearly inadequate for that purpose. Neither price paid in the past for physical assets nor those amounts arbitrarily amortized are indicative of debt-paying capacity. Nor are the artefacts of that extant system. The reported deferred tax debits from employing various tax-effect accounting regimes are not necessarily money the company has, had or ever will have; capitalized expenses refers to money often long gone, as do deferred costs; and goodwill and like intangibles refer to money never had in respect of the former, and money often expended in respect of the latter.

Arguably, going concern assessments and other financial decisions based on data emerging from the conventional historical cost system are at best contestable, and at worst impossible, for they have to draw upon an assumed relationship between the written down value of an asset and its likely market price, the expenditures otherwise incurred and the current market price for the rights or privileges purchased, and the like.

The following example (undated) penned by Chambers was unearthed as the current writers examined materials in the R. J. Chambers Collection.[25] The example sought to capture the links between what Chambers described as the 'Real—the Induced—the Theoretical' aspects of accounting, and to assist readers in better understanding Chambers' views on the going concern notion and the role of accounting in decision making.

> Now some will say, 'Oh, but a going concern is not interested in the cash (resale) value of the assets it is using'. We may explore this a little, for it leads to a *reductio ad absurdum.* Suppose it were sufficient to show the trucks at the balance produced by the accountant's assumption of a five-year-life for each of the trucks; that is what the traditional notion of a going concern entails. Now, if the balances of cash and truck accounts are to have the same kind of meaning, so that the two figures can be added, we

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[25] The R. J. Chambers Collection is a set of correspondence entailing approximately 20,000 pieces of correspondence written or received by Ray Chambers from 1947 to 1999. The example dates suggest this example was written in the late 1960s.

should be entitled to require the accountant to say what the balance of cash should be now on the basis of certain assumptions about the future. And we would not require any external proof that the figure for cash actually tallied with the cash held or not. Which, of course, any accountant would claim to be absurd.

Let us take the example one step further. You will have noticed that the balance of assets at 1 January 1967 was $22,000 and that at 31 December 1969 it was also $22,000. Suppose that the resale prices of the trucks were actually $7600; we may introduce the statement 'it is true that the resale price of the trucks aggregated $7600 at 31 December 1969'. We may now say, by inference from PQRSTUVW,[26] that the company is as well off as it was at 1 January 1969. Now following our principle, that in experienced matters we may check the inference with the facts independently, we may try to put this to the test. How will we check whether $22,000 in early 1967 is equivalent to $22,000 in late 1969? Anyone with experience of financial matters will know that this statement is not true. And he will say it is not true [given X in the example] to the extent of about 10 per cent. Here again we have a case of the deduced conclusion being at odds with the facts f(PQRSTUVW) does not equal F(PQRSTUVW). The only way to make the two equal is to introduce another statement **X** 'it is true that the $67 was able to buy 10% more things generally than the $69'. And if this, or its effects, are woven into the accounting for Company A it will be true that f(PQRSTUVWX) does equal F(PQRSTUVWX). And it will consequently appear that Company A is worse off than it was in 1967 by $2200; it will have disclosed and paid its taxes on more than it *really* earned.

My object has been to show that accounting may seem to be a logical process since it has a formal way of dealing with a variety of matters, and it yields figures which themselves correspond: debits equal credits. But like any purely deductive process, the conclusions tell us no more than the statements with which we began. If we leave out any premise, we will necessarily reach a different conclusion. But as we are concerned, not with statements only, but with statements which are to be used in real world affairs—decisions—the conclusions we draw are testable and should be tested by reference to the consequential facts. If they do not tally we have omitted something. In traditional accounting, the simple illustration we have used shows that failure to check the deduced consequences (the balances of accounts) with the actual state of things leads to error—error which those having no knowledge of the internal modes of accounting (its purely deductive processes) are ignorant of. The example has been limited to simple things. But the conclusions are universal, for the same analysis by reference to logical processes can be applied to all assets and equities.

In short, no system of accounting is an adequate basis for the choices and judgements of those at a distance, if it depends only or largely on its deductive apparatus. It can only be relied on if the products of the process tally with the independently observable consequences of the events it records. The more we put into it fictional premises, and the more we leave out of it statements which should be premises, the less useful it will be. On these tests traditional accounting in this decade fails badly.

CoCoA and the Economia Aziendale Paradigm, Complementary Rather Than Contradictory

The uneasy relationship between Economia Aziendale accounting and the demand in modern markets for periodic financial information about companies' financial affairs was explained above. Compromises forced by the demand for period-based information were noted. If we accept that the demand is for information about the wealth and progress to date of firms, a curious and unexpected complementarity between Economia Aziendale accounting and CoCoA can be demonstrated.

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[26] Where: P = A bought a truck for $6,700 in Jan 2 1967; Q = A bought a truck for $7,000 in Jan 2 1969; R = A owns both trucks at Dec 31 1969; S = A had access to cash of $22,000 on Jan 2 1967; T = Cash payments = cash receipts minus $4,400 1967–1969; U = Accountants wrote off depreciation of $1,000 in each 1967–1969; V = Accountants used ordinary accounting procedures; W = Resale price of trucks in 1969 was $7,600; X = $67 = $69(1.1).

First, we should note that financial calculations within the Economia Aziendale paradigm and CoCoA are uniquely (though within competing accounting systems) directed toward unequivocal monetary measures. When the azienda ceases operations (unless there is a deficiency of assets relative to liabilities), an amount of *free* cash will remain—the ultimate outcome which successive Economia Aziendale accounting calculations had been directed towards. With CoCoA, at each time of periodic reporting the statement of financial position depicts in contemporary terms an approximation of the aggregative monetary resources attributable to the shareholders at that time. This is because all the assets and equities of the firm are stated in terms of their money amounts or money's worth (monetary equivalents) at that time, as best indicated by their current selling prices. At the end of the firm's operations the residual after the discharge of debts will be a sum equal to that emerging under the Economia Aziendale system.

Of course, irrespective of the accounting system employed, that will be the outcome at the end of the entity's life (see Sterling, 1981). The firm commences with cash and terminates with a cash residual. But only a CoCoA-type market price system (see also Sterling, 1979) is designed to provide periodic estimates of the progress towards that residual in terms of contemporary money or its equivalent. In this sense CoCoA entails a periodic simulation of the ultimate cash to cash operation that all business entails.

The period-by-period difference between the amount of the net assets calculated under CoCoA and the Economia Aziendale value of the firm is a quantification of the all-inclusive income or loss for t^{n-1} to t^n captured in the value of the firm at t^{n-1}, were t^{n-1} the current date and were t^n some indeterminate date.

Were t^{n-1} to be the balance sheet date and the business to have ceased at that time, the collection of assets and liabilities would be terminal, and the amount for net assets under CoCoA and the value of the firm under Economia Aziendale would be equal.

That cannot be claimed of historical cost accounting, for (apart from an entirely cash operation, even in its most liberal form) it does not result in contemporary monetary values being assigned to all physical assets. Replacement price mechanisms of the Betriebswirtschaft and Bedrijfseconomie varieties also do not, for their focus on replacement prices and replacement costs is a focus on money needed to acquire what they already have, not money or its equivalent in possession. Likewise, the Italian Economia Aziendale accounting by engaging in periodic discounting is simulating a cash-to-cash operation, for that is the specific rationale underpinning the discounting mechanism.

Second, Chambers was quite explicit in his depiction of the firm, particularly corporations, as a coalition of forces (albeit often competing forces—see Coase, 1937; Cyert and March, 1963; and Chambers, 1986, especially Chapter 7; 1993). Thus, his concept of the firm differs little from that attributed to Economia Aziendale above. Zappa's depiction of the coordination of economic operations, where persons *and parts* are vital components, is compatible with Chambers' depiction of the entity underpinning CoCoA. Likewise the irrelevance of the nature or objectives of the organization, public or private, profit-oriented or not, also underpins CoCoA. The current money's worth of physical assets is invariant between the assets being held by a charity and otherwise being held by a profit-seeking enterprise. Assessments of solvency, liquidity, rate of return, assets backing, debt to equity and the like are also invariant in respect of the manner in which they are made and the underlying understanding of the significance of the indicator. Of course, the importance placed upon them by individuals may well differ.

Third, CoCoA does not entail any abandonment of the time and space coordination embedded in the Economia Aziendale paradigm. It is to be noted that income under CoCoA captures not only the cash or cash equivalents consequences of past transactions, but also the cash and cash equivalents consequences of all economic events up to the present. By injecting the calculations with the impact of changing market prices for physical assets, expectations held within the market regarding the future income producing potential of those assets are an integral part of the data. We might presume that those market prices capture NPV calculations, albeit those made external to the firm by potential buyers, in contrast with similar *internal* calculations made in the Economia Aziendale system. In the case of a one-asset firm, or a multi-asset firm in which the separate assets are lumped (as in, say, a network of integrated assets) as if one unit, were there to be *perfect foresight* the value attributed to the firm and the income calculated would be very similar under CoCoA to that calculated in accord with Economia Aziendale.

Fourth, Poli's (1971) explanation that Economia Aziendale has a strong focus on *income* rather than *capital* does not distance Economia Aziendale from CoCoA. What might be in dispute between devotees of each system of accounting is whether income or capital should be regarded the dominant focus. The issue is somewhat irrelevant, for Economia Aziendale income is a function of the capital value of the firm at two points in time, and under CoCoA capital and revenue enjoy an equal focus. Articulation is evident in CoCoA. Indeed, to the extent that it is not distributed, the income attributed to one period is automatically recognized as part of the capital of the next by the mechanics of the capital maintenance mechanism employed in the calculation of periodic income. CoCoA thus employs a capital maintenance mechanism that complies with the Economia Aziendale principle that the firm's capacity to produce income in the future has to be maintained.

Fifth, at a superficial level a considerable gap appears to exist between Economia Aziendale and CoCoA by virtue of the assignment under the latter of separate money's worths for the individual assets. Arguably, that is more apparent than real. The money's worths assigned to non-monetary assets under CoCoA (usually their current selling prices, we have noted, probably entails recourse to present value calculations) are according to the manner in which those assets are dealt with *in the ordinary course of business* (Chambers, 1966). Assets used in conjunction with others might well be lumped as a single item, and if they are sensibly and economically severable they would be treated as separate assets. Now, under Economia Aziendale, treating the *firm* as the income earning potential unit is merely to employ the firm as a surrogate for the separate income earning potentials of the separate groupings of, and the individual, assets and the financing that attaches to them.

With a shared perfect foresight and information symmetry the income determined by the calculations made by persons external to the firm under CoCoA would equate those made internally by the managers of the firm under Economia Aziendale.

Sixth, there is no dispute that period by period the aggregate of the valuations assessed under CoCoA is most unlikely to equal the economic capital *of the firm* were it to be assessed under Economia Aziendale. But again, that does not mean a loss or diminution of complementarity between the two. The complementarity derives not from equality but from a compatibility between the foci and the incremental nature of the information provided, one to the other. Accounting under the Economia Aziendale paradigm has to assume a time horizon to employ the discounting mechanism, notwithstanding the assumption of continuity. CoCoA addresses financial outcomes, income to date and present financial position at a discrete point in that continuum.

Arguably, the CoCoA Statement of Financial Position would provide a useful reality check on the Economia Aziendale valuation of the firm at those points. We have noted above that in most scholars' opinions, the general compromise specifies that the sum of the separate monetary amounts for the assets and liabilities for Italian firms is not to exceed the attributed economic capital under Economia Aziendale (Amodeo *et al.*, 1964). The intention is to use the comparison as a check to ensure that capital is not being distributed. But unless those amounts are determined in contemporary terms, such a comparison fails to provide indications that the capital has been maintained. Thus, the most suitable data set for that purpose—the comparison of the Economia Aziendale value of the firm and accounting residual equity—would be found in the CoCoA Statement of Financial Position. An excess of the Economia Aziendale economic capital of the firm over CoCoA residual equity would be a workable indication of capital having been maintained in NPV terms. In contrast, an excess of the CoCoA residual equity over the Economia Aziendale economic capital of the firm would give good reason to reassess its going concern status.

CONCLUSION

This article has argued complementarity between the data emerging from accounting in accord with the principles of Economia Aziendale and those emerging from the application of CoCoA. Faced with the need for periodic financial information relating to income and financial position, and the customary use of the data in published financial statements to derive indicators of the financial characteristics of firms, and of solvency in particular, it is clear that Economia Aziendale data are inadequate for that purpose. Likewise it is clear that CoCoA data, while relevant to, do not provide the assessments of the *value of the firm* underpinning the historical status of Economia Aziendale in the Italian accounting literature.

While primarily examining the relationship between Economia Aziendale and CoCoA, related issues highlighted in this work reveal general insights into debates about the limited nature of essentially historical cost-based financial statements, their failure to provide data on the value of the firm as a whole, and some of the problems of future-oriented statements, such as those likely to arise from complying with IFRSs based on 'fair values' of individual assets and liabilities. This is especially the case when fair value is deemed to be synonymous with deprival value, as in the FASB's latest initiatives on measurement.

Combined, Economia Aziendale *and* CoCoA form a strong coalition, potentially a very congenial mix of *ex ante* and *ex post* financial data, primarily by virtue of both entailing a focus exclusively on the contemporary financial characteristics of firms—Economia Aziendale on the approximations of the net present value of the firm, and CoCoA on the measurement of the firm's financial wealth and progress period by period, and a representation of its financial position at each period's end. In a curious twist, the features of CoCoA that in earlier times would have brought its greatest criticism in much of the Anglo-American accounting literature—its use of current market prices to approximate the current money's worth of its physical assets, its unique capital maintenance mechanism to ensure income is indicative of a pure increment in current general purchasing power, and its dominant focus of measurement in terms of current money or its equivalent—forge a link between CoCoA and Economia Aziendale.

Paradoxically, one of the least supported applications of the Anglo-American accounting tradition has potential complementarity with what is arguably the most extreme application of the European accounting tradition, Italy's Economia Aziendale.

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RACHEL BASKERVILLE AND DAVID HAY

The Effect of Accounting Firm Mergers on the Market for Audit Services: New Zealand Evidence

This article examines the outcomes of accounting firm mergers using data about the frequency of audit switches, the numbers of partners in the respective firms, and perceptions revealed in interviews with partners. Evidence from client switches does not show any evidence that the mergers were followed by cost reductions, or of collusion to force prices up. The effects of the mergers appear to have been elsewhere—the merging firms reduced partner numbers substantially, increasing partner leverage so that individual remaining partners were better off. Data from interviews confirm these findings, and show that the culture of individual firms had a significant effect on determining which group of partners controlled the merged firm.

Key words: Accounting; Auditing services; Mergers; New Zealand.

In 1989, two accounting firms merged their offices in many countries of the world, including the United States and New Zealand, reducing the major firms to the Big 6. The firms of Deloitte, Haskins & Sells and Touche Ross became Deloitte Touche Tohmatsu, and Ernst & Whinney and Arthur Young became Ernst & Young. When the mergers occurred there was a significant increase in concentration of accounting firms providing audit services to listed companies. Subsequently, another merger between Price Waterhouse and Coopers & Lybrand to form PricewaterhouseCoopers and the demise worldwide of Andersen (including being merged with Ernst & Young in New Zealand) make this topic even more salient. The concern of regulators and auditors is that reduced competition may allow profit maximization through price increases or collusion by audit firms seeking to maximize their total income (e.g., Sullivan, 2002). The effects of these mergers in the New Zealand audit market are examined using pluralistic research methods to examine the outcomes of the mergers. In contrast to previous studies, we examine

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the effects on the firms themselves, using both publicly available data and interviews, and find that the direct effects of the mergers are not income maximization at the firm level, but partner income maximization.

This research adds to previous findings (which are mainly in the U.S.) by examining evidence from partner numbers and qualitative data from interviews with partners in the merging firms.[1] It also provides evidence from a smaller jurisdiction, one where the mergers were foisted upon the partners without being based on an assessment of the benefits of merger synergies in the local audit market.

As in previous studies, merging firms did not gain significantly more (or less) new work. Nor did the frequency of auditor switches change significantly, showing no evidence of across-the-board cost reductions, unilateral price increases or collusion among remaining firms. These results suggest other reasons are needed to explain the mergers. The data on partner numbers show that the mergers had a substantial effect in allowing firms to increase partner leverage by reducing the numbers of partners. The interview data reveal that each merger involved one firm with greater cohesion and prestige than the other merging firm, and the culture of the firms had a considerable effect on the outcome of the merger and which partners were downsized. The stronger merging firm appeared to be able to take as many of the audits from the other firm as desired and as few of the partners as possible. Many of the partners who did not join the merged firm were in offices in small towns, and were oriented towards small business and farm accounting.

PRIOR LITERATURE

Accounting Firm Mergers

Audit firm mergers have been studied previously in other countries, but in most cases over a shorter period and with some limitations to the data. An assumption in most of the previous studies is that the audit firms are seeking to maximize their income in a similar way to corporations.

Wootton *et al.* (1994) used concentration ratios and the Herfindahl index to measure auditor concentration based on numbers of clients and client revenues in the United States related to two mergers. Both mergers were followed by increased market concentration. Iyer and Iyer (1996) examined audit fees paid by 270 companies in the U.K. to Big 6 firms, comparing 1987 with 1991 data. They concluded that there was no significant increase in external audit fees after the mergers. Ivancevich and Zardkoohi (2000) used the number of offices as a proxy for office costs, and the asset base of the audit clients as an indicator of market share. They concluded that the mergers mainly resulted in increased efficiencies within the audit market, passed through to end-users in the form of lower prices.

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[1] This allows us to apply both quantitative and qualitative research approaches, consistent with Abdel-Khalik (1983), who advocates that researchers should triangulate both within and across research approaches. He noted: 'The philosophic support for triangulation is based on the tacit assumption that any single theory, research method, particular empirical study, etc., is manifestly incapable of divining the nature of reality in all its complexities' (p. 381).

Menon and Williams (2001) examined audit fees of U.S. companies that voluntarily disclose this information and found that there was a short-term increase in fees subsequent to the 1989 mergers but no long-term effect.

Sullivan (2002) failed to find any significant increase or decrease in switches won by the merging firms in the U.S. These results are not consistent with the merging firms imposing either across-the-board cost reductions or unilateral price increases. Further, the fringe firms (non-Big 6 audit firms) did not win more audit switches after the mergers, and therefore there was no evidence of collusion on prices. However, the merged firms were more successful at winning audits of large clients after the mergers, which implies they were able to offer lower fees to large clients due to efficiencies arising from the merger. Auditor switching studies are discussed in more detail below.

More recently, the collapse of Arthur Andersen led to increased concerns of a lack of competitiveness among the remaining Big 4 (GAO, 2003). The GAO's 2003 study on consolidation and competition among public accounting firms in the U.S. found that market concentration had reached levels by 1998 at which the largest firms have significant market power. The GAO found no evidence of impaired competition but warned that there may be implications for competition in the future.

Outside the U.S., merger outcomes have varied. Christiansen and Loft (1992) reported that the 1989 mergers were followed by increased concentration in the market for audit services in Denmark, but also by increased competition. Choi and Zéghal (1999) examined the audit services markets in ten countries in 1986 and 1991. In all countries there was greater concentration in the market after the mergers, but in some countries (France, Italy, Netherlands, Switzerland and the U.S.) there were then more equally balanced market shares and more even competition. However, there was less competition in Canada, Denmark, Germany, Sweden and the U.K. Thavapalan *et al.* (2002) studied the market share of Australian publicly listed companies for audit firms to ascertain levels of auditor concentration after the Price Waterhouse/Coopers & Lybrand merger in 1998. The Herfindahl Index suggested that the merger did not necessarily decrease competition, and the authors argued that a more equitable spread of clients among the Big 6 firms had been achieved in the post-merger period.

The issues of audit firm competition and the factors driving mergers are still of considerable relevance, although the market for audit services has changed over the period since the late 1980s.[2] The previous studies examined firm income maximization. Our evidence (including evidence from partner numbers and interviews) is consistent with the view that partner income maximization is of greater importance.

Auditor Switches

Existing literature on auditor switching has concentrated on variables related to the client companies, rather than changes in the audit firms themselves, although factors on both sides of the relationship will be relevant. The switching literature extensively examines opinion shopping—the issue of whether clients switch auditors for opportunistic reasons or for other reasons based on economic events. Opportunistic switching, in which clients engage in 'opinion shopping' for a lenient auditor, does not appear to be widespread, although the evidence is mixed. For example, the results in Chow and Rice (1982) support the contention that firms switch auditors more frequently after receiving qualified opinions. However, Schwartz and Menon (1985) find that this effect is not evident when client financial distress is controlled for.

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[2] For example, Ferguson and Stokes (2002) show that the market in Australia had changed so far as the impact of industry specialization on audit fees is concerned.

Subsequent studies generally find that if opinion shopping exists, it is not frequent (Smith, 1986). Craswell (1988) finds evidence consistent with managers' switching auditors more frequently following qualification. Krishnan (1994) and Krishnan and Stephens (1995) find that clients who switched were treated relatively conservatively by both predecessor and successor auditors, suggesting either the absence of successful opinion switching or that the increased switching is not motivated by opinion shopping. Carcello and Neal's (2002) results suggest that a less independent audit committee is associated with greater managerial latitude in changing auditors.

Other explanations for auditor switching which have been supported by research include changes in management (e.g., Beattie and Fearnley, 1995), and changes in client characteristics that affect agency costs (e.g., Healy and Lys, 1986; Johnson and Lys, 1990; DeFond, 1992). Williams (1988) examines both client and auditor factors associated with switches, and finds significant associations between switch and auditor industry market share, audit firm longevity and client receiving negative media publicity. Similarly, Anderson *et al.* (1993), examining switching in an environment of corporate takeovers, find only limited support for switch decisions being related to economies of scale and client-specific specialization. The study presented here examines switching as it relates to the audit firms.

SOURCES OF DATA

Our study uses several sources of data not available in previous research, including:

- A long-established historical time series of listed company audit fees and assets;
- Partnership data for the years 1976–94; and
- Interviews with (mostly) retired partners from the Big 8, reflecting on merger activities.

These sources allow us to investigate the effects of the merger on individual partners, and the impact of individual incentives. The company data totalled 2,485 audits including 251 switches in the 1985–2001 period. The number of partners in each audit firm was obtained from the *Yearbook* of the New Zealand Society of Accountants[3] for each year from 1976 until this information ceased to be published annually from the end of 1994. Qualitative data were derived from an ethnographic study of accounting firm genealogies in New Zealand in which forty partners in the Big 8 were interviewed in an oral history project. The interviews sought the subjects' observations on merger events, client movements and leverage within partnerships.

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[3] Later Institute of Chartered Accountants of New Zealand and now New Zealand Institute of Chartered Accountants.

The interview subjects were respondents to a survey of members of the Institute of Chartered Accountants of New Zealand who had been partners in major audit firms between 1982 and 1992 and who had agreed to be interviewed. Retired partners and former partners were selected because it was believed they would be able to talk more freely about their experiences. All of New Zealand's large firms were represented, as well as both urban and rural practices scattered throughout the country. The objective of the interviews was to discuss and review the reasons for the survival of the remnant Big 4 firms, and to discuss factors that had contributed to the collapse of other large firms in New Zealand in the 1980s. The interviews were conducted under the aegis of the protocols for oral history. They were unstructured interviews, usually one to two hours long. All tapes are lodged in the National Oral History Archives. The interviewees read and made corrections as required to the transcripts, mainly to spelling of proper nouns. Three interviewees requested minor deletions of passages, but these were all personal in nature. Both authors read all the transcripts. The extracts analysed in this article were considered by both authors to be typical of the sentiments expressed. Neither author identified any response which could be considered an 'outlier' to that offered in this study as representative of the experiences of partners in particular firms. All survey respondents and participants in this study were invited to read research outputs from this project on a website. No adverse comments were received from participants.

The interviews were conducted from July to December 2002. Although this was some time after the events described, this was a necessary outcome of selecting former partners who would be able to discuss these matters more freely. The experiences analysed were related by multiple members of the same firm. There were six interviewees from each of the merging firms. We also used newspaper reports and books of firms' histories in order to triangulate with the narratives and the quantitative data from audit fees.

ANALYSIS

We first present descriptive statistics including market concentration, followed by tests of competition similar to those in previous studies. Then the effects on the individuals concerned are examined.

Descriptive Statistics

Table 1 reports descriptive statistics showing the market share of audit firms from 1987 to 2001, both by number of clients and value of audit fees. It also reports the CR4 concentration ratio and Hirschman-Herfindahl index, two commonly used measures of industry concentration. According to the GAO (2003) the U.S. Department of Justice and Federal Trade Commission regard markets with a

TABLE 1

DESCRIPTIVE STATISTICS OF MARKET SHARE
(Audit fees in $ thousand by year)

Auditor	1987	%	1988	%	1989	%	1990	%	1991	%	1992	%	1993	%	1994	%
Panel A: Audit fees, 1987–94																
Merging firms																
Deloitte Haskins & Sells	3,408	9.3%	3,920	9.6%	3,309	7.8%										
Touche Ross	1,608	4.4%	1,681	4.1%	3,653	8.6%										
Deloitte Touche Tohmatsu	*5,015*	*13.6%*	*5,601*	*13.7%*	*6,961*	*16.3%*	5,113	14.0%	3,864	13.5%	4,031	15.1%	3,570	15.7%	4,852	19.5%
Arthur Young	5,154	14.0%	5,765	14.1%	4,359	10.2%										
Ernst & Whinney	1,333	3.6%	975	2.4%	670	1.6%										
Ernst & Young	*6,486*	*17.6%*	*6,740*	*16.5%*	*5,028*	*11.8%*	6,090	16.6%	6,162	21.6%	6,269	23.5%	4,199	18.4%	4,596	18.5%
Coopers & Lybrand	5,270	14.3%	6,014	14.7%	5,011	11.8%	3,467	9.5%	4,490	15.7%	3,075	11.5%	3,142	13.8%	2,848	11.4%
Price Waterhouse	1,417	3.9%	2,229	5.5%	3,558	8.4%	3,152	8.6%	261	0.9%	667	2.5%	716	3.1%	2,170	8.7%
PricewaterhouseCoopers																
Non-merging firms																
Arthur Andersen													121	0.5%	250	1.0%
KPMG (or Peat Marwick)	10,862	29.6%	10,913	26.8%	10,500	24.7%	10,709	29.2%	7,715	27.0%	6,445	24.2%	5,621	24.7%	5,758	23.1%
Joint audits																
Coopers & Lybrand (PwC)/KPMG	2,634	7.2%	4,589	11.3%	5,055	11.9%	5,266	14.4%	5,432	19.0%	4,902	18.4%	4,413	19.4%	3,980	16.0%
Ernst & Whinney/Hogg Young Cathie	771	2.1%	959	2.4%	874	2.1%										
Ernst & Whinney/KPMG	1,963	5.3%	2,403	5.9%	3,784	8.9%										
Ernst & Young/Arthur Andersen																
Sub Total Big 8	34,419	93.6%	39,447	96.7%	40,771	95.7%	33,797	92.3%	27,925	97.7%	25,388	95.2%	21,781	95.7%	24,455	98.2%
Fringe Firms	2,339	6.4%	1,332	3.3%	1,814	4.3%	2,823	7.7%	664	2.3%	1,284	4.8%	984	4.3%	445	1.8%
Total audit fees $000	36,759	100.0%	40,779	100.0%	42,585	100.0%	36,620	100.0%	28,588	100.0%	26,672	100.0%	22,765	100.0%	24,899	100.0%
Concentration measures:																
CR4		74.3%		76.5%		71.5%		83.7%		96.8%		92.7%		92.0%		88.5%
Hirschman-Herfindahl Index		1789		1846		1906		2150		2615		2329		2331		2143

TABLE 1

(continued)

Auditor	1995	%	1996	%	1997	%	1998	%	1999	%	2000	%	2001	%
Panel B: Audit fees, 1995–2001														
Merging firms														
Deloitte Haskins & Sells														
Touche Ross														
Deloitte Touche Tohmatsu	3,948	16.0%	2,603	11.4%	2,480	10.6%	2,656	10.2%	3,156	12.0%	2,660	12.5%	3,592	19.2%
Arthur Young														
Ernst & Whinney														
Ernst & Young	4,174	16.9%	2,020	8.8%	2,775	11.8%	2,666	10.3%	2,209	8.4%	2,098	9.9%	2,156	11.5%
Coopers & Lybrand	3,176	12.9%	2,910	12.7%	2,674	11.4%								
Price Waterhouse	2,115	8.6%	1,788	7.8%	1,415	6.0%								
PricewaterhouseCoopers	*5,291*	*21.5%*	*4,698*	*20.5%*	*4,089*	*17.4%*	4,426	17.0%	4,357	16.6%	4,302	20.3%	5,554	29.7%
Non-merging firms														
Arthur Andersen	272	1.1%	317	1.4%	505	2.1%	306	1.2%	642	2.4%	820	3.9%	938	5.0%
KPMG (or Peat Marwick)	6,200	25.2%	6,468	28.2%	5,957	25.4%	7,232	27.9%	7,112	27.1%	2,562	12.1%	3,497	18.7%
Joint audits														
Coopers & Lybrand (PwC)/KPMG	4,000	16.2%	4,000	17.5%	5,000	21.3%	6,000	23.1%	6,000	22.8%	6,000	28.3%		
Ernst & Whinney/Hogg Young Cathie														
Ernst & Whinney/KPMG														
Ernst & Young/Arthur Andersen			2,000	8.7%	2,000	8.5%	2,000	7.7%	2,000	7.6%	2,000	9.4%	2,000	10.7%
Sub Total Big 8	23,885	96.9%	22,107	96.5%	22,806	97.0%	25,285	97.4%	25,475	96.9%	20,442	96.3%	17,737	94.9%
Fringe Firms	753	3.1%	797	3.5%	693	3.0%	679	2.6%	811	3.1%	781	3.7%	958	5.1%
Total audit fees $000	24,638	100.0%	22,904	100.0%	23,499	100.0%	25,964	100.0%	26,286	100.0%	21,223	100.0%	18,695	100.0%
Concentration measures:														
CR4		79.8%		83.0%		84.6%		92.4%		90.7%		87.7%		84.5%
Hirschman-Herfindahl Index		1985		2224		2227		2700		2595		2314		1994

Note: CR4 ratios and Hirschman-Herfindahl indices calculated with joint audits allocated between joint auditors, and fringe firms taken individually.

Hirschman-Herfindahl index of below 1000 as 'predisposed to perform competitively', while a market with a Hirschman-Herfindahl index of greater than 1800 is 'a highly concentrated market in which firms have significant market power'. The Hirschman-Herfindahl index, computed on the basis of audit fees (Table 1) has been above 1800 since the Big 6 mergers occurred in 1989. It reached a high of 2700 with the PricewaterhouseCoopers merger in 1998, but subsequently declined. After 2001, the merger of the New Zealand firm of Arthur Andersen with Ernst & Young increased it again, to approximately 2300. These results suggest that the Big 4 have significant market power, and have done for some time. The CR4 measure (market concentration of the biggest four suppliers) peaked in 1992, and declined until 1995, then increased again.

Table 1 also shows that the total value of audit fees for listed companies in New Zealand was at its highest in 1990, and has since declined. (The amounts reported are not adjusted for inflation, so the decline in real terms is even greater.) A few large audits have a substantial effect on the market in New Zealand, especially the audit of Fletcher Challenge, jointly audited by KPMG and Coopers & Lybrand (subsequently PricewaterhouseCoopers), which amounted to 28.3 per cent of listed company audit fees in the year 2000, before Fletcher Challenge was broken up into four components.

KPMG had the largest market share throughout most of the period, and had a growing share of the market (with 2001 as an exception—at that point large KPMG clients Brierley Investments and Nufarm Industries moved their headquarters out of New Zealand). Arthur Andersen had no presence in New Zealand in the 1980s, and expanded from a small base in the 1990s. Of the merging firms, Deloitte Touche Tohmatsu lost market share (based on audit fees) after the merger. Ernst & Young suffered similarly, when joint audits are taken into account. PricewaterhouseCoopers' market share remained approximately static after its merger (when fees from its joint audits are considered).

The analysis reported here is concerned mainly with listed companies in New Zealand, which do not represent the whole market for audit services. Other entities that are audited include subsidiaries of overseas companies, which are required to be audited by New Zealand law. We did not obtain financial statements for these companies, but we were able to obtain the size of the larger companies from the *Management* magazine Top 200 listing in 1989 and in many cases to identify their auditors in a business directory (*The New Zealand Business Who's Who*). We examined fifty-one of these companies in 1989 (before the mergers) and sixty-eight in 1993. The share of companies in our sample audited by the merging firms did not change substantially. We found that KPMG had substantially increased its numbers of overseas-owned unlisted company clients, from three out of 51 to thirteen out of 68, and from 7.7 per cent of the assets of non-finance industry companies to 16.7 per cent, and from zero to 45.3 per cent of the finance industry clients. However, there was no similar effect for Coopers & Lybrand, which kept approximately the same number and percentage of overseas-owned unlisted companies. Of the other firms, Arthur Andersen grew from having no presence at all in 1989 to three clients in 1993, but these represented only 3.3

per cent of non-finance companies by assets and less than 1 per cent of finance sector assets. Price Waterhouse had the strongest share of the market among overseas-owned unlisted company clients, in contrast to its position among listed companies, but lost ground relative to the other firms. It audited thirteen of the non-finance sector companies in both 1989 and 1993, its share of assets declining from 34.0 per cent to 29.5 per cent. In the finance sector it increased its number of clients from two to four but its market share fell from 41.8 per cent to 31.2 per cent. Thus, the unlisted company data also reveal little effect from the mergers.

Switches

The relative number of switching clients won by merging and non-merging firms indicates indirectly whether the firms increased or decreased their fees, and can be used as a measure of whether the mergers led to efficiencies passed on to clients, or to collusion and higher prices. The observations were divided into periods using the same classifications as Sullivan (2002), namely a pre-merger period (1985–88), transitional period (1989–93) and a post-merger period (1994–96). We also add a subsequent period, 1997–2001. Switches won by the merging and non-merging firms before and after the mergers are shown in Table 2, Panel A. Chi-squared tests comparing the shares of the firm in the periods before and after the mergers fail to show a statistically significant difference between either the pre-merger and transitional periods, or the transitional and post-merger periods. The same result applies to auditor switches, new listings, and the two combined. The table shows the merging firms (including PricewaterhouseCoopers), other Big 8 firms and fringe firms. We also tested each of the merging firms individually in comparison with all other firms, and each period compared to the adjacent periods. None of these results was significant, showing no indication of cost reduction or unilateral price increases as outcomes of the mergers. Further, the effect of the PricewaterhouseCoopers merger was tested using a chi-squared test of clients gained by this merged firm compared to all others (test results not shown). PricewaterhouseCoopers gained slightly fewer clients after its merger, but this was also not significant. This approach to examining the effects of the mergers is somewhat indirect, as clients may switch for reasons other than getting fee decreases as discussed in the literature review. However, it is consistent with previous studies, particularly Sullivan (2002).

If the smaller number of big firms leads to increased collusion on audit fees, then the competition for a switching client is more likely to be won by a non-Big 6 auditor (fringe auditor). Fringe firms won no larger (or smaller) share of switches after the mergers. The New Zealand data do not support collusion (coordinated effects) as a rationale for these mergers.

In Table 2, Panel B, the three periods are examined and the non-merging Big 6 firms are classified into three categories—the merging firms, the 'growth' firms and 'stable' firms. There were clear differences in the market positions of the growth firms (Price Waterhouse and Arthur Andersen) which were small and fast-growing and the stable firms (Coopers & Lybrand and KPMG) which were the largest two firms and had very stable market shares. The growth firms had a

TABLE 2

SWITCHES AND NEW JOBS GAINED BY MERGING AND OTHER FIRMS

Panel A: Switches and new jobs gained by merging firms compared to other big firms and fringe firms

Period	DTT	EY	PwC	Other Big 6	Fringe firms	Total
Pre-merger, 1985–88	39	49	55	37	28	208
Transitional, 1989–93	10	10	11	10	8	49
Post-merger, 1994–96	6	12	19	12	10	59
Subsequent, 1997–2001	13	10	14	13	15	65
Total	68	81	99	72	61	381
χ^2						8.838
p						0.717

Panel B: Firms classified as merging Big 6 firms (in 1989), growth Big 6 firms, stable Big 6 firms and fringe firms

	Merging	Growth	Stable	Fringe	
	DTT and EY	PW and AA	Other Big 6	Fringe firms	Total
Pre-merger, 1985–88	88	13	79	28	208
Transitional, 1989–93	20	8	13	8	49
Post-merger, 1994–96	18	24	7	10	59
Subsequent, 1997–2001	23	14	13	15	65
Total	149	59	112	61	381
χ^2					52.59
p					0.000

DTT = Deloitte Touche Tohmatsu and predecessor firms.
EY = Ernst & Young and predecessor firms.
PwC = PricewaterhouseCoopers and predecessor firms.
PW = Price Waterhouse.
AA = Arthur Andersen.

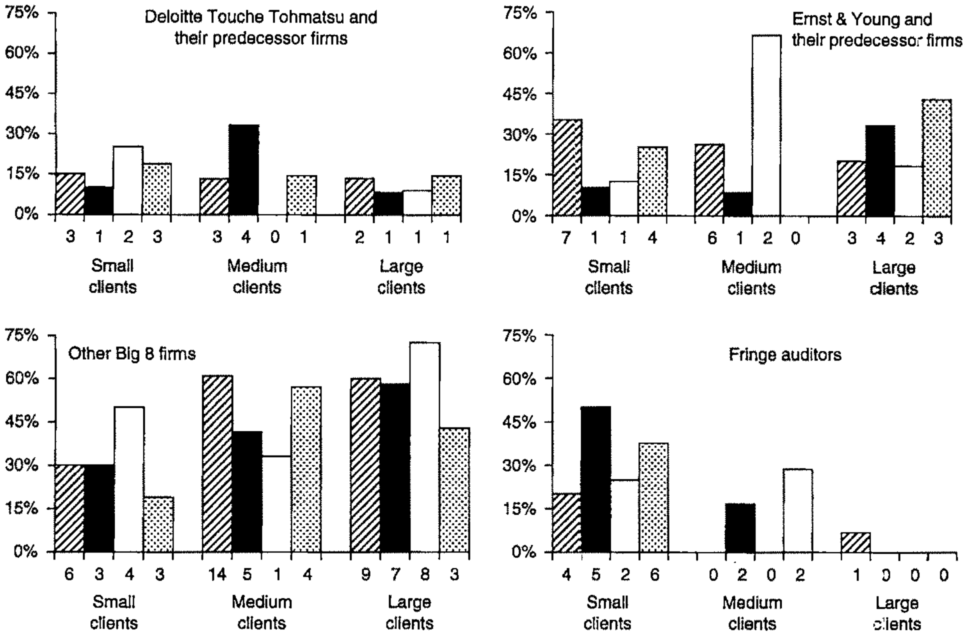
relatively small presence in New Zealand (Price Waterhouse) or no presence at all (Arthur Andersen) before 1989. They obtained a very small share of switches and new work before 1989, a growing share in the early 1990s and the largest share in the mid-1990s. The results of the chi-squared test of this difference are strongly significant. However, the difference does not appear to relate to the mergers, but rather to a trend for these firms to achieve a market share more in line with their worldwide reputations.

Sullivan (2002, p. 391) finds evidence that the rationale for the mergers is the reduction in costs by the merged firms that apply to large clients only. We divided the observations into small, medium and large categories, with equal numbers in each category. The number of switching clients in each category is reported below each bar column in Figure 1. Ernst & Young gained a larger share of large switching clients, and the fringe auditors gained less. However, the non-merging Big 6 firms gained more of the switching large clients than the two merging firms. This

FIGURE 1

SHARE OF SWITCHING MARKET FOR ALL CLIENTS BY PERIOD AND SIZE CATEGORIES.[a]

(The number of switches in each category is shown below the relevant bar)



[a]This replicates Figures 2–5 in Sullivan 2002.

result suggests that the mergers were not the most important factor influencing changes in market share among large clients.[4] Sullivan (2002) assumed that the mergers could be explained by firm income maximization. We argue, however, that it is more probable that partner income maximization was of primary importance in motivating the mergers. We present data in subsequent sections to support this view. In summary, if the mergers had cost effects leading to price effects, these appear to have had little effect on the market for audit services.

Partner Numbers

Factors other than audit firm income maximization may be important in determining the outcomes of the mergers. In particular, we suggest that partner income maximization was a determinant. An advantageous outcome of the mergers for

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[4] The number of observations is small, and so these conclusions are provisional, but there is no strong evidence of merger effects on switches.

TABLE 3

DESTINATIONS OF PARTNERS OF FIRMS AFTER MERGERS

	Touche Ross	Deloitte Haskins Sells	Deloitte Touche Tohmatsu	Ernst & Whinney	Arthur Young	Ernst & Young
Partners in 1989	83	66	149	45	85	130
Retiring	0	–8	–8	–5	–5	–10
Moving to other Big 8						
KPMG	–13		–13	–2		–2
C & L		–2	–2			
EY	–1		–1			
To spin-off firms	–24	–6	–30	–1	–6	–7
To small firms	–10	–3	–13	–6		–6
To sole practice	–7		–7	–3	–6	–9
Unable to trace after exit[a]	–14	–2	–16	–6	–8	–14
Moving to industry	–1	–1	–2	–1	–5	–6
New partners admitted			10			22
of those, leaving after merger			–1			–4
Partners in 1993	13	44	66	21	55	94

[a] These partners no longer appear in the membership directories, and include those who retired without becoming retired members of the New Zealand Society of Accountants, left the country, or died.

individuals can be increased partner leverage—where an existing group of partners can obtain the revenue from a larger group of clients, or a smaller group can share the revenue of the existing group of clients. The benefits for individuals of increased leverage apply both in partnerships with equal sharing of income among partners, and in those with differential levels of sharing—it is still more advantageous to individuals to be able to share the 'pie' with a smaller group.

We examined partner numbers for the period 1989–93 (after this, this information ceased being published). In the period immediately following the 1989 mergers, both merging firms considerably reduced their numbers of partners (Table 3). By 1993, Ernst & Young reduced partner numbers by 28 per cent from the combined total of the two merging firms, with a greater proportion of those dropping out being former Ernst & Whinney partners. Deloitte Touche Tohmatsu reduced partner numbers by 56 per cent—to the level of the number of partners in the smaller of the two pre-merger firms. Most of the departing partners were from Touche Ross, and only thirteen of the eighty-three pre-merger Touche Ross partners remained in Deloitte Touche Tohmatsu in 1993. In that case, large numbers of partners departed to other Big 6 firms or to smaller firms, and in effect did not join the merged firm at all. Reducing partner numbers increases partner leverage by reducing the numbers among whom partnership income is distributed. From the perspective of partners, a merger that results in lower revenue and income can still be advantageous, if there are relatively greater reductions in partner numbers. The extent of partner reductions in New Zealand after the mergers is much more striking and consistent than any of the market share, auditor switching or audit fee effects.

Other accounting firms also reduced their numbers of partners somewhat between 1988 and 1993: Coopers & Lybrand from 102 to 90; Price Waterhouse from 43 to 37 and KPMG from 100 to 68. KPMG also reduced offices from sixteen to six, and was the only firm to achieve similar reductions in numbers to the merging firms. These changes suggest that economic factors were behind the reduction of partner numbers. Possible factors included the stock market crash of 1987, the deregulation of the New Zealand economy and increased overseas investment taking place at about the same time—all of which are likely to have reduced the demand for auditing. However, the mergers also appear to be important in providing the opportunity for partner reductions, as the non-merging firms did not experience similar levels of reduction.

Firm Culture

Further evidence about the outcomes of the mergers, and their causes, is obtained from interviews with partners. Oral history interviews were conducted with forty partners in various audit firms at the time of the mergers. These interviews are summarized in the Appendix.

According to the interviewees, Arthur Young had a strong unified culture, with income shared on a national basis. In contrast, Ernst & Whinney was not highly regarded technically, did not share partnership income nationally, and acted more as a group of sole practitioners. Many Ernst & Whinney partners left the firm after the merger. In interviews they remembered this as the result of ruthless performance evaluation by the former Arthur Young partners; to the Arthur Young partners, the former Ernst & Whinney partners who left were 'simply not up to it'.

In the other merger, Deloitte Haskins & Sells had a strong and unified culture, while Touche Ross suffered from internal divisions among partners from previous mergers. The Touche Ross partners were also not as highly regarded. Comments from a former Deloitte partner are that Deloitte Haskins & Sells felt they could dominate the merger, control the management positions and choose which Touche Ross partners did not join the merged firm. A Touche Ross partner commented that many of the partners in that firm decided that the merger was 'not for them'. The interviews included some comments that people get 'chopped' who were just 'in the wrong place at the wrong time'; others were 'simply not up to it' or 'older partners who were slowing down.'

It is not possible for us to evaluate the quality of the individuals concerned or the reasons why certain people did not join the firm, including whether it is due to poor performance by the former Ernst & Whinney or Touche Ross partners, or aggressive behaviour by the former Arthur Young or Deloitte Haskins & Sells partners. It is clear that, in both mergers, some partners did not feel compatible; the merger was followed by substantial reductions in partner numbers compared to the total of the two firms before the merger; and partners from one of the merging firms were dominant in the merged firm. The two mergers differed in some of the processes—the Deloitte Touche merger was seen as a process of the dominant Deloitte group being able to 'cherry pick' those few Touche Ross partners that they wanted, while in case of the Ernst & Young merger it was perceived that the Ernst & Whinney partners were absorbed into the merged partnership, but subsequently did not stay.

Despite the costs to some partners, the mergers would have been difficult to avoid for the New Zealand firms. Although national partnerships can in some cases avoid taking part in such a merger (as in the examples of Touche Ross of Australia or the U.K. firm of Deloitte Haskins & Sells in 1989) there was little alternative available to the New Zealand firms. They would also have been aware that shortly before this time the national partnerships of KMG Kendons and Lawrence Anderson Buddle had disintegrated after the loss in each case of the firm's international Big 8 firm association.

Similar information about more recent mergers is not available. Interviewees who had been partners in Price Waterhouse or Coopers & Lybrand (or Arthur Andersen) had retired from the partnership prior to the recent mergers. However, anecdotal evidence and news reports from other countries suggest similar partner leverage effects after the PricewaterhouseCoopers and Ernst & Young/Arthur Andersen mergers. For example, PricewaterhouseCoopers in the U.K. reduced partner numbers by 10 per cent soon after the merger (Kemeny, 2001).

DISCUSSION AND CONCLUSION

We examined the changing market for audit services after audit firm mergers in a setting where more extensive data about audit fees and partners are available than in previous research settings (such as the U.S.). Previous studies examined firm income maximization, but we present evidence that partner income maximization was of more importance. Our results failed to find overall cost reductions or unilateral price increases as outcomes of the mergers. The fringe firm data do not support collusion among the big firms. An examination of partner numbers, and interviews with former partners, reveal the importance of partner leverage effects, where individual partners can be made better off while downsizing the firm. These results are consistent with an observation that partnerships have different objectives than corporations, and partners can seek to benefit from downsizing, so long as the number of partners is reduced proportionately more than the amount of net income. Interviews with partners showed that the more united groups of partners from Deloitte Haskins & Sells and Arthur Young were able to dominate those from Touche Ross and Ernst & Whinney, and to predominate in the merged firms. Such extensive evidence about more recent mergers is not yet available, but what we do have is consistent with our conclusion.

This project has offered an extension of previous research based on multiple sources of data to provide a richer understanding of merger events. Oral histories added richness to the other data. Carrying out the study in New Zealand has the advantage of access to audit fee data, and a relatively compact audit market, which facilitates examining the effect of mergers imposed on audit firms. It has the disadvantage that the numbers of observations are smaller than in the U.S., so that in some cases the trends in client switches (when considering the different client sizes) are not as clear, and the possibility that the results obtained in this setting may not be generalizable to other settings.

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APPENDIX

THE HISTORY AND CULTURE OF MERGING FIRMS

Arthur Young and Ernst and Whinney

Arthur Young in New Zealand was the former New Zealand firm of Wilkinson Wilberfoss, formed from a merger of Wilberfoss & Co. and Wilkinson Nankervis & Stewart in the 1980s. Wilberfoss & Co. already had a strong nationally organized structure, with national profits shared among all of the New Zealand partners and affiliations with Arthur Young dating back to the 1960s. Wilkinson Nankervis and Stewart appeared to be absorbed into that national structure and firm culture quite readily. The national executive board had an element of control that all of the offices had to adhere to. The partners seemed to be proud of the national structure and regarded it as a sign of their professionalism. Around about the time of the 1989 merger with Ernst & Whinney, the Arthur Young partners suffered liability from an audit failure, RSL.

Ernst & Whinney in New Zealand had been the national firm of Hunt Duthie. In contrast to Arthur Young, Ernst & Whinney was a federation of partnerships in each city, which shared profits on a local basis. Partners had considerable freedom to go their own way. 'The advantages were autonomy and being masters of our own destiny.' Ernst & Whinney was not highly regarded technically by partners in other firms, and even themselves: 'We weren't the brightest, we weren't the best, we didn't have the best brains. But we had good people and we had a lot of fun.' Some of the partnerships had joined the national firm only recently and somewhat reluctantly (e.g., in Invercargill), and so some partners were not unhappy to leave Ernst & Young.

Comments by some Arthur Young partners show they regarded Ernst & Whinney as 'a collection of sole practitioners who were not up to it' and as not having leaders of the profession. 'There were people right through . . . there were staff from Ernst & Whinney who were just simply not up to it. Didn't meet our standards and couldn't sort of lift themselves. Likewise partners, who were stuck in a mould of a small local firm practitioner, and just simply through their period in life couldn't sort of step up.'

Ernst & Whinney partners commented that Arthur Young's was the dominant culture after the merger, so many Ernst & Whinney partners left; that it was more of a takeover by Arthur Young than a merger; and that Arthur Young was controlled by a small group—'they were ruthless, and if you didn't perform you were out'. Partners were evaluated for profit-sharing purposes, and 'the challenge was to not to beat the enemy in the marketplace but to beat one's partner'.

After the merger, it became clear that Auckland and Wellington offices were now much more profitable than the other offices, and (under national profit-sharing) there was now pressure not to subsidize smaller, less well-performing offices. Eventually, this pressure led to local profit sharing being imposed on smaller offices, and some local offices of Ernst & Young left the firm (the chairman of the firm 'went through like a bloody big knife, saying, "Do as I say or get out"').

Deloitte Haskins & Sells and Touche Ross

Deloitte Haskins of Sells had been formed in the early 1970s from a merger of firms in the main centres. It had not been through any major mergers since then.

Touche Ross had been created more recently, and was still not a highly unified firm. The basis of the firm had been McCulloch, Butler & Spence, a very strong regional firm based in small and large towns on the east coast of the North Island. Within its region, it was the most prestigious and largest firm. It specialized in farm and small business accounting, although it had one very large audit, Wattie Industries Limited. According to a partner, the firm had a very structured culture, 'and knew it'. Partners had all come up through the ranks, regarded themselves as fortunate to be partners in McCulloch, Butler and Spence and were homogeneous and collegial. 'It was something unique, something different, and you won't get it again. And unfortunately, we all agree, we ruined it.' The firm merged in 1980 with Clarke Menzies, a firm with more expertise in auditing and long associations with Touche Ross. Clarke Menzies was a smaller firm, but based in the major business centres. Clarke Menzies partners considered themselves harder working than the partners in McCulloch, Butler & Spence, many of whom had farms as well as the accounting practice. After that, the new firm of McCulloch Menzies merged with other firms around New Zealand ('for some reason we had to be a national firm, for some reason which still escapes me') and adopted the name Touche Ross when this was permitted in 1983. Some of the former McCulloch, Butler, Spence partners resented adopting the Touche Ross name, regarding their old name as more prestigious among their clients. There were many cultural differences—Clarke Menzies had once been one of the 'premium' audit firms in New Zealand but needed to grow larger; but merging with McCulloch, Butler & Spence brought in a disproportionate number of partners from that firm (forty-nine McCulloch, Butler and Spence to eighteen Clarke Menzies), and in addition there were partners from other small firms without a culture in common with either of those two firms.

The Deloitte Haskins and Sells/Touche Ross merger in New Zealand suffered because of international problems—the Touche Ross firm in Australia did not join the merged firm, but became part of KPMG, and the Deloitte firm in the U.K. also did not join, and merged with Coopers & Lybrand instead. As a result, the New Zealand office lost clients whose audits had been referred to them by parent companies audited by Touche Ross Australia or Deloitte Haskins & Sells U.K. The firm suffered financially for several years as a result.

According to a former Deloitte partner:

> In the case of the Touche Deloitte, they [the N.Z. partners] really had no option. If a merger is declared in New York or London, you've got to go with it. If you don't go with it you leave yourself out at your peril; because the reasons they didn't go were mainly personality clashes, I think . . . in the U.K. there was an argument between the senior Deloitte person and a senior Deloitte person in the U.S., as to who is going to be the chief, the top dog of all this; and the English guy lost out, so in a huff—this is the story we're fed, and it cuts a ring of truth about it—in a huff he said, 'Right, well, I'm not going to play', and went off to Coopers.
>
> In Australia, Deloitte people were just a little too aggressive in their negotiations of how the Touche people would come into Australia, because Deloittes was regarded as a superior firm to Touche, shall we say, in Australia. They just played hardball too far, and

> despite intervention from the U.S. to try to make it work, it didn't work. The Touche guy said, 'No, we're not going under those conditions', and went off to KPMG.
>
> So that was a bit of a disaster for New Zealand because the Deloitte people when they went to Coopers, of course, we lost all the referred work in New Zealand, which had come previously from Deloitte. Touche did not have a huge amount of work in New Zealand, so the Touche people in New Zealand didn't bring a helluva lot to the party, and the Deloitte people lost all their referred work from the U.K. Similarly, from Australia, the Touche people in New Zealand, of course, lost all their referred work from Australia, because that all went off to KPMG. So that was recognized by the U.S., and for a number of years, I think about seven years, there was a contribution to the New Zealand partnership from out of the U.S., just in recognition that the merger hadn't gone terribly well down this part of the world in terms of referred work.

Locally, the merger was also incomplete—according to interviewees, only twenty or so Touche Ross partners out of about eighty-four joined the merged firm at all, and all but three of those had departed by 2002.

According to a Deloitte partner, the culture of Touche Ross was 'quite different from ours'. The one firm that Deloitte did not want to merge with was Touche Ross. 'We thought, "Well, we can absorb the Touche Ross people in New Zealand without any difficulty", because Deloittes was clearly the dominant group. We were bigger. We had control of the management positions. So we didn't see it as a threat at all and we said, "Yes, we'll do it, providing a whole bunch of these people don't come".' Many provincial offices of Touche Ross did not become part of the merged firm.

The same partner observed that after any merger, there will be a 'big cleaning out of duplication' so that the merged firm will be about two-thirds the size of its components. 'Most of the people who get chopped out in a merger are either being perceived as past their use-by date . . . and then you normally get some fall-out from partners who just happen to be unlucky, to be in the wrong place at the wrong time.'

Some former Touche partners observed that they had decided the merger was not for them, and many of the offices became independent regional firms (one office, Gisborne, became part of KPMG).

A partner in another firm commented, 'Touche Ross were keen to merge with us' (instead of Deloitte) but 'they had declined so badly we would only have considered one or two of them'.

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AIDA SY AND TONY TINKER

Bury Pacioli in Africa: A Bookkeeper's Reification of Accountancy

The origins of accountancy are all too frequently equated with the antecedents of double-entry bookkeeping, notwithstanding warnings from both Pacioli and Littleton to the contrary. It is ironic that Pacioli—the formalizer of double-entry bookkeeping—is lionized today in the appellation, 'Father of Accounting'. Here, we argue that this promotion of Pacioli the Technocrat fails to acknowledge incipient social aspects of his work (and that found in more ancient texts). Further, we contend that such reconstructions of Paciolian and ancient works are not entirely innocent. Rather, they fit nicely with a Eurocentric and post-colonial ideology, which anoints with enthusiasm an Italian monk as accounting's premier contributor to modern civilization (*sic*). This view simultaneously construes other civilizations as underdeveloped, pre-modern, and even barbaric (with the corollary of providing a moral pretext for invading, occupying and 'saving' a subjugated people). It should come as no surprise that Western accounting scholars haven't searched too hard for alternative 'Fathers of Accounting' among colonized civilizations. This article, in contrast to the orthodox wisdom, seeks to redeem Littleton's notion of 'Accountancy' in a way that encompasses the diversity of counting, measuring, recording, reporting and accountability that functioned in different ancient and contemporary social formations. Such a view introduces an older and richer lineage for accountancy—as a field that is, and always has been, integral to social, political and cultural life. In short, we propose burying Pacioli the Bookkeeper, and redeeming Pacioli the Social Actor, by explicating the social, cultural and political content inchoate in his work, and that found in even more explicit pre-Paciolian ancient texts (particularly those from Africa, that reach back to the Dawn of Civilization).

Key words: Africa; Bookkeeping; Capitalism; Diop; Double entry; Eurocentricism; Pacioli.

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WHICH PACIOLI?

Luca Pacioli published his *Summa de Arithmetica, Geometria, Proportioni et Proportionalita* in 1494. The third part of this book, which is titled 'Particularis de Computis et Scripturis' or 'Details of Accounting and Recording', is a treatise on bookkeeping.[1] This work, based on the Venetian System, explains double-entry bookkeeping. The book is not a theory of accounting. Rather, as Pacioli put it: 'The present treatise . . . will serve all the needs of the subjects regarding accounts and recording . . . I intend to give sufficient rules to enable businessmen to keep all their accounts and books in an orderly fashion' (quoted in Brown and Johnson, 1984, p. 25).

Pacioli is careful to disavow any pretence of offering a theoretical treatise, or reflection on high principles. His self-proclaimed concern is with technique (rules) of bookkeeping.[2] At no time does he explicitly address a broader economic and social context.[3] Notwithstanding these caveats, some Western scholars have viewed double-entry bookkeeping technique as itself so revolutionary as to treat it as synonymous with accountancy itself, and for that reason upgrade Pacioli the Bookkeeper to the 'Father of Accounting' (Geijsbeek, 1914; Cayley, 1936; Peragallo, 1938; Taylor, 1942; Yamey, 1949; 1964, 1975, 1978, 1982; Littleton and Yamey, 1956; Winjum, 1971; Tinker *et al.*, 1988).[4] His pre-eminence in accounting history was affirmed in 1994, when accountants and scholars met in Pacioli's birth village in Italy to celebrate the 500th anniversary of his treatise on bookkeeping.[5]

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[1] To some later interpreters, such as Yamey and Littleton, the quotation included here may be taken as a prescient caution by Pacioli, to limit his himself to a modest project of providing businessmen with an orderly method of recording (and implicitly rejecting any suggestion that he was writing a treatise on 'Accounting' and 'Accountability'). It is unlikely, however, that Pacioli could have anticipated the full ramifications for the corporate form in modern society.

[2] Readers familiar with ancient writings know that a strength of these works lies in the excellent titles of books, treatises, essays and pamphlets (and the different divisions and subdivisions they contain) by making those titles precise, clear, with a lot of information for the reader. This is true in Pacioli's treatise on bookkeeping where we read in Chapter One the following title: 'Those Things Necessary to the Successful Businessman. Methods of Properly Keeping a Ledger and Journal in Venice and Elsewhere.' It is in black on white, so Pacioli cannot be misread.

[3] Pacioli divided 'Details of Accounting and Recording' into two parts, the first of which is concerned with inventory while the second is called 'Disposition'. Pacioli gave the rules for practical bookkeeping and auditing as we practise them today. He shows a business how to take an inventory of the assets, record business transactions, post to the ledger with comments on posting references, prepare a trial balance, and close the nominal accounts through profit and loss into the capital account. The 'Details' also contain one part on auditing. The internal controls are mentioned in Chapter 28: 'How Ledger Accounts Should be Carried Forward When They Are Full. The Place to Which the Remainder Should be Transferred, in Order to Avoid Fraud in the Ledger.'

[4] Cautions against attempts to root accounting in an Archemedian (Paciolian) points of origin are not new to the accounting literature. See, for instance, Burchell *et al.* (1980).

[5] This article uses the term 'Eurocentricism' in a specific sense: It is limited in meaning to an ideology that promotes Modern capitalism, and thus elevates Littleton's Pacioli and at the same time buries the Social Pacioli. Hence it is not Pacioli per se that is the problem, but a particular reconstruction of Pacioli. Our interpretation accords with that developed by Amin and Diop in the references.

Yet a careful reading of Pacioli's text also reveals an appreciation of the importance of labour (especially female labour) in accounting work process. The quotation below, admittedly somewhat arrested and a little begrudging, nevertheless displays an incipient understanding that is remarkable for the fifteenth-century writer:

> Entries should be made in it by the owner, or in the absence of the owner, by his agents, assistants, or his women (if they know how.) A big business never keeps his assistants idle. Businessmen and their assistants are frequently at fairs and markets. Only the women or other assistants remain at home, and they can barely write. However, in order not to refuse customers, they must buy, sell, or collect according to the orders left by the owner.[6]

Pacioli's 'Warnings and Helpful Advice to the Successful Businessman' shows an appreciation that extends beyond that of a double-entry technician, yet at the same time exposes the inevitably limited view of someone constituted within a particular social milieu. Thus, he displays a keen cultural eye for the dispositions needed by the successful businessman (accountant). 'The law helps those that are awake, not those that sleep' (Brown and Johnston, 1984, p. 34). As a benefactor of papal patronage, he appeals to suitably Catholic maxims. He quotes Paul—'no one is worthy of the crown except he who valiantly fights for it' (p. 34)—and as a monk living in an agrarian economy he draws on agricultural idioms for invocations for thrift and hard-work: 'a businessman rightly resembles a rooster which is the most alert animal that exists, for among other things, it keeps night vigils in winter and summer never resting' (p. 33).[7]

Why bury the bookkeeper Pacioli and resurrect the social Pacioli? We contend here that all history is history today; that all reconstructions of the past are inevitably colored by today's interests and motivations (Hopwood and Johnson, 1986).[8] Suppression of the social Pacioli has erected a firebreak that obstructs investigations into the moral, political and social responsibilities of accounting today. Hence, this article aims to resurrect, not just the social Pacioli, but also social accounts from earlier times and places.

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[6] Brown and Johnston (1984) note that Italian women during the fifteenth century rarely received formal education. They played a secondary role in society, scarcely breaking away from household duties. As a reflection of this, Pacioli's mother's name is never mentioned, nor is it know whether he had a sister.

[7] Yet, even the Committee on Terminology of the American Institute of Accountants casts the net more broadly, in defining Accounting as: 'the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character, and interpreting the results thereof'. This definition of accounting underlines technique, principles and theory (it includes the interpretation of the results) and goes beyond Pacioli's treatise, yet it still has nothing to say about social matters.

[8] To claim otherwise is to court an untenable episteme of hyper-objectivity (Kuhn, 1970). If history is always 'history today', then it behoves us to treat all resurrections of historical characters with a certain caution and suspicion. We need to give vent to *all* the evidence, including that which is repressed and that which is seemingly incidental. This doesn't restore absolute objectivity, but it does guard against unexamined biases.

WHICH LITTLETON?

Paralleling Pacioli's nuanced manuscript is a somewhat elliptical text from Littleton. He begins with great promise, by declaring the modest objective of delineating a history of double-entry bookkeeping. 'Accountancy' is a more ambitious project than he indicated in his Preface to his betters:

> No more do I pressure to think of this book as a history of accountancy. Yet in the second part I have attempted to sketch the circumstances surrounding the expansion of simple clerical or book-keeping processes into an important field of knowledge, namely accountancy. But this has only set the plow in a virgin sod; the real cultivation of the new field must rest with better husbandmen to follow. (1933, p. 2).

Yet Littleton's unpretentious stance is short-lived. Like a parent who fights a losing battle, resisting a show of glowing pride in her golden child, so Littleton eventually yields to his secret ambition: that double-entry bookkeeping be remembered as a seed in the rise of capitalism and Western civilization.

Littleton was not alone in succumbing to the temptation of allowing science to be used in crowning a Western white man as the human genesis. Piltdown Man survived for forty years as the 'true progenitor of modern man' until the missing link was exposed as a fraudulent composite of a 500-year-old human skullcap, the lower jaw of an orangutan and the incisors of a chimp (Leaky, 1935; Ambrose *et al.*, 1980; Ambrose, 1982; Weiman, 1997a, 1997b; Stott *et al.*, 2001; *Encyclopedia Britannica*, 2004).

Piltdown Man now resides in popular culture as a comedy character, thereby displacing disquieting questions about the role of wishful thinking in science. Piltdown triggered a great (uncritical) yearning among English scientists and a public who delighted in welcoming a human progenitor who once lived in their back garden on the Sussex Downs.[9] Once this distinguished forefather was exposed, he was dispatched, with great alacrity, to the pages of popular humour.[10]

Is Pacioli Littleton's Piltdown? Certainly, he lacks the element of farce, but his boosters share a measure of imprudence. Consider Littleton's attempt to upgrade the social import of double-entry bookkeeping in the rise of capitalism: 'The commerce which was to assist in the formulation of double entry had to be a profitable commerce, for this is the best means of saving a fund of capital which can be re-employed productively and thus in turn create additional capital' (1933, p. 15).

Littleton's positive predisposition for 'The Modern' is matched by his antipathy towards the ancient world. This posture is not based on evidence or scientific analysis, but an unexamined assertion that 'progress' equals capital accumulation and underdevelopment equals its absence. Ergo: double-entry bookkeeping is affiliated with the rise of Western civilization. He thereby confirms his prior decision to skip seeking accounting's roots in pre-Paciolian civilizations:

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[9] Piltdown arrived just in time to sideline the Taung Child, whose much smaller cranium made it a much less auspicious ancestor as a 'missing link'.

[10] The humiliation of Western man didn't end with Piltdown: The most recent genetic studies suggest that all humans are descends from a sponge (Sogin, 2004).

> It is evident, then, that even the very ancient institutions of money, property and the art of writing took on a vitality in the new surroundings which had been impossible in the ancient world. The Renaissance . . . appeared in practical matters as well, for commerce, capital, credit, arithmetic were all antecedents of bookkeeping . . . they seemed animated by a new life in comparison with that shown in ancient history. (1933, p. 18)

> The wealth of the ancient civilizations was stagnant in the form of palaces . . . But in the city-states of medieval Italy, between the years 1200 and 1500, capital was urged into productiveness. (1933, p. 19)

Subsequent sections of this article debunk Littleton-like fables about uncivilized ancient civilizations. Western civilization was not self-invented, but owes a cultural debt to 'the ancients' and especially to African civilizations. As a foretaste of our antidote to Western-centricity, we cite Diop:

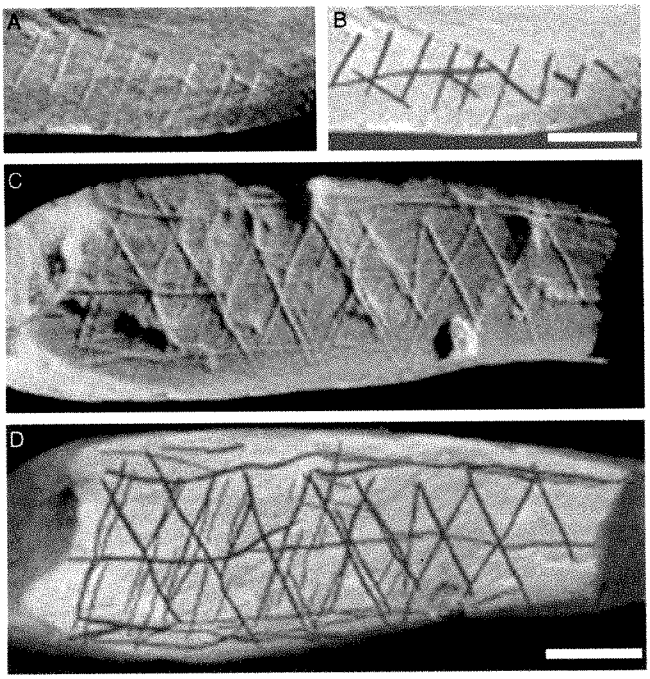
> The Empire of Ghana antedated by five hundred years that of Charlemagne, who was crowned Emperor in the year of 800. From the dismemberment of the Roman Empire in the fourth century until that date, Europe was nothing but chaos, with no organization comparable to that of the African empire. With Charlemagne commenced the first effort at centralization; but one can say without exaggeration that throughout the Middle Ages Europe never found a form of political organization superior to that of the African states. (Diop, 1987, pp. 99–100)

Schmandt-Besserat provides additional challenges to core assumptions about the real origins of (ac)counting (Schmandt-Besserat, 1996, 1999; see also, Mattessich, 1987, 2000). She provides compelling evidence from her Uruk studies that writing (Cuneiform script) did not derive from wall-paintings (pictographic theory) but from counting (bidden). As counting and recording are social acts over time and space, and therefore incipient social acts, Schmandt-Besserat's analysis places accounting at the Dawn of Civilization itself.

The Uruk evidence puts the first evidence of counting at circa 8000 BC. The importance of Schmandt-Besserat's work for the accounting field cannot be underestimated, because it provides accounting with a direct lineage that reaches beyond the fifteenth-century Paciolian technocratic accomplishment of double-entry to the rise of human sociability itself. This article complements Schmandt-Besserat's work and (with appropriate humility) seeks to extend its accounting ramifications, well beyond the 8000 BC horizon of Schmandt-Besserat's Uruk studies. The Blombos Ochre (below) is a tally-count that is a primitive, 77,000-year-old predecessor to the tallying found on the sachets noted by Schmandt-Besserat. And the Ishango Bone contains sophisticated mathematical marking that pre-date the Uruk findings by nearly 20,000 years. As John Shrapnel (2003) remarks on the Blombos investigations:

> The new evidence emerging from Africa flatly contradicts the old view that modern human behaviour has its origins with a human revolution in Europe 40,000 years ago. The discovery of the Blombos Ochre, together with other similar finds, shows that symbolic behaviour must have started in Africa much earlier. Nevertheless, while there is growing consensus among archaeologists that modern behaviour must first have emerged in Africa before coming to Europe with the arrival of modern humans, there is still disagreement about exactly how and when this happened: so far, the weight of discoveries in Africa is small in comparison to the huge body of evidence found in Europe.

Shrapnel's concluding caution about the neglect of Africa correlates directly with the Eurocentric concerns expressed in this article. The Blombos Ochre, to which Shrapnel refers, is a tally record discovered in a remote site in South Africa by Professor Christopher Henshilwood of the African Heritage Research Institute (Henshilwood *et al.*, 2002; Henshilwood, 2004; Klein *et al.*, 2004).



This Blombos Ochre[11] is dated at 75,000 years BC, far older than Uruk findings, and according to Shrapnel (2003): 'Henshilwood's discovery is threatening to revolutionize our understanding of one of humanity's biggest puzzles. History books may have to be rewritten and long-held theories torn up.'

This glimpse of the broader set of possibilities, beyond Littleton's Accountancy, is a cautionary warning to mainstream accounting history. First, we cannot assume, *a priori*, that the antecedents of Accountancy (or double-entry bookkeeping) reside in a single individual (Devine, 1985). After all, in other fields of history, Great-Man theories are widely discredited as explanations of historical events. Second, this article rejects self-indulgent antiquarianism as the *dernier cri* of history.[12] Rather, we make a modest attempt to distil from the past lessons that might ennoble the present.[13] Finally, as today's 'Accountancy' is beset by the turmoil of financial and audit failures of the Enron genre, it would seem fitting that the most prescient lessons from the past are those concerning social conflict and contradictions.[14]

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[11] This image is reprinted with the kind permission of the AAAS. It appeared originally in C. S. Henshilwood, F. d'Errico, R. Yates, Z. Jacobs, C. Tribolo, G. A. T. Duller, N. Mercier, J. C. Sealy, H. Valladas, I. Watts and A. G. Wintle, 'Emergence of Modern Human Behavior: Middle Stone Age Engravings from South Africa', *Science*, Vol. 295, Issue 5558, 1278–1280, 15 February 2002. DOI: 10.1126/science.1067575; published online 10 January 2002 [DOI: 10.1126/science.1067575] (in Reporres).

The remainder of the article is divided into three sections, each of which demonstrates in different ways the manner in which the technical, commercial and social are intertwined. The first is concerned with African history and the second with Babylonian antecedents (modern Iraq). We then sidestep most Egyptian Greek and Roman accounting. Accounting in these societies has already earned very competent reviews (on Egypt, for instance, see Carmona and Ezzamel, 2005, and on Mesopotamia, Mouck, 2004). Rather, we focus on the silences in this literature, which are indeed inevitable if review articles are limited to what exists in the extant literature (Ezzamel, personal communication).

This article complements Carmona and Ezzamel (2005) and Mouck (2004) by describing early examples of (African) token-counting and other accounting practices. As accounting antecedents, these African practices are clearly of interest in their own right; however, their proximity to Egyptian, Mesopotamian and other civilizations also suggests that they infused practices beyond Black Africa and that this legacy deserves more attention (Calhoun, 1926).[15]

There are special reasons today for attempting to put Africa and Babylon (Iraq) back on the accounting history map, because they have both fallen-foul of ideological reconstitution. Thus we begin with the African antecedents of accounting to counter the Eurocentric slant that has infused accounting history (Sy and Tinker, 2005). We question whether Italy, Greece or Egypt is necessarily the only place to start for accounting historians. Hence, the immediately following section recounts the contribution of the African continent to the cultural and commercial rise of civilization.[16] This is followed by an analysis of accounting in Old Africa that concludes with a review of accounting in the era of African Empires.

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[12] As a socially constructed artefact, not even antiquarianism can escape serving purposeful activity; the only question is whether its masquerade as dispassionate, objective and transcendental should be tolerated.

[13] This begs the question as to how to impart modesty and scepticism into a historical quest. We learn from Littleton's centricity that an effort towards greater ethnographic empathy and tolerance for 'the other' would be a good start.

[14] Littleton's modest gesture, in the second part of his book, to 'sketch out the circumstances surrounding the expansion of simple clerical or book-keeping . . . into . . . knowledge, namely accountancy', is hardly adequate. It is an institutional, legal history—not a social analysis—and is therefore almost irrelevant to understanding contemporary social conflict.

[15] We might also add that there has already been some excellent scholarship on Egyptian and Mesopotamian civilizations (see, e.g., Schmandt-Besserat, 1992, 1996, 1999; Ezzamel, 1994, 1997; Ezzamel and Hoskin, 2002; Mouck, 2004).

[16] Cheikh Anta Diop was, and is, the premier authority on African history.

AFRICAN BEGINNINGS

Archeologists now agree that Africa gave birth to the first man (L. Leakey, 1935, 1970; Dart, 1925; Dart and Craig, 1959; Diop, 1954, 1960, 1981; Johanson and Edey, 1981; M. Leakey, 1960; Ambrose, 1980, 1982, 1998, 2001a, 2001b; Cerling *et al.*, 1991; Ambrose and Sykes, 1991; Weiman, 1997a, 1997b; Stott *et al.*, 2001; Wolde, 2001).[17] Yet, notwithstanding the role of the Old Black Continent in furthering human development, its part continues to be understated.

Colonial and post-colonial ideologies have been integral to perpetuating a one-sided version of human development which denies a central role to Africa. A history that overlooks Africa, virtually excluding it from the map, makes it easier for colonial powers to evade recognizing moral and economic responsibility for the institution of slavery. Even an apology for slavery has been unforthcoming for fear that it might affect litigation and compensation.[18]

Colonialism and post-colonialism have typically promulgated a two-nation ideology: one type of nation being advanced and developed, the other being underdeveloped and in need of aid. In 1884–85, this formulation received official sanction from the Berlin Conference on Africa, and thereafter from its successors: The League of Nations and the United Nations (Fanon, 1965b, 1968, 1967; Frank, 1978; Amin, 1988; Blaut, 1992, 1993; Said, 1994; Trouillot, 1995). Rosenberg (2004) describes the Berlin Conference as the 'undoing of Africa' where fourteen European countries and the U.S. met to 'divide up the African cake' without 'wasteful, violent conflict' (Aronson *et al.*, 1999). Prior to the conference, 80 per cent of Africa, composed of a thousand quite distinct indigenous languages and regions, was under traditional and local control. Presided over by Otto von Bismarck, Berlin superimposed a hodgepodge of geometric boundaries into fifty irregular countries composed of peoples who were typically unrelated, and often antagonistic. In this paternalistic vision, the colonial powers were destined to lead, and the colonized were condemned to follow—as 'protectorates' (Rosenberg, 2004; Aronson *et al.*, 1999; O'Brien, 2005). The devaluation and suppression of the culture and past of colonized peoples was a necessary component of development.[19]

A telling anecdote is provided of French colonialists who assembled African children in a school building (following European practice) with the purpose of educating them. Schoolteachers would instruct their African students in the following manner: 'Repeat after me: "Nos Ancetres, les Gaulois" ["Our ancestors, the Gauls"]'. After school, children would return home and ask their parents or grandparents: 'Why didn't you tell me that I am a descendent from the Gauls?'

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[17] The archeological evidence is presented later in this section.

[18] A recent instance is suit filed against Lloyds for $1bn by the descendants of American slaves (Walsh, 2004).

[19] As a result of pressure from the U.S.S.R., India and other emergent states, by the late 1940s the UN was shamed into retreat from this condescending ideology.

African adults were appalled by this practice and, as a consequence, large numbers withdrew their children from French education. The destruction of African history and culture was an indispensable aspect of colonialism. As Diop notes: 'The erasing, the destruction of the historical conscience also has been since time began part of the techniques of colonization, enslavement, and debasement of peoples' (1991, p. 212).

Diop augments his thesis (and ours) by quoting a French official who controlled the colonies from France and who wrote to the French administrator resident in Africa. The text was written by a Senator Peyronnet from Allier (a French electoral district) and was published in the *Annales Coloniales*. Peyronnet declared:

> There is a subject I would see disappearing without regret from the program of our African schools: it is history. A few readings during the French course would be enough to give them the notion of our country's power . . . There is an even simpler way to give a clear idea of our strength to the native youth, which is to decorate the classroom with the intertwined magnolias and to set a miniature 75mn cannon on the teacher's desk. This, by itself, in some measure and for a given period of time, can replace history; but one should not forget that people very quickly get used to scarecrows: the sparrows end up making their nests in the pockets of the gentlemen who gesticulate in the cherry trees. (Quoted in Diop, 1991, p. 212).

Our contention here is that accounting history has echoed earlier (and sometimes current) habits of Eurocentric (colonial) history. Even today, it is neither expedient nor palatable to look too closely at Africa for historical lessons (even less Mesopotamian Iraq), especially if 'the conqueror' were to discover that the West itself is heavily indebted to 'the conquered' for its own civilization (including its accounting civilization).

There are many historical examples that dispel early neo-colonial attempts to suppress Black contributions.[20] The presence of the blacks as Egyptian pharaohs, the Sphinx which is an image of a pharaoh with the head of a black; Egyptian princesses wearing coiffures similar to those of black girls; black peasants found on the Tomb of Pharaoh Horemheb (Diop, 1991).

When unsettling evidence presented itself, it was often quietly discarded (Diop, 1991). Diop was one of two Africans who witnessed the original excavation of the mummy of Ramses II in Egypt. The body's pigmentation was black. The mummy was transported to Paris, where French archeologists repeatedly X-rayed the body and discovered to their surprise that the process was whitening the skin colour. They continued with the process, and then announced to the world at large that Ramses II was white. Diop publicly accused them of fraud, but after the public furore died down Ramses II was quietly reburied (archeologically speaking)—a tragedy for science, as Ramses ruled over one of the greatest Egyptian empires.

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[20] Ezzamel (personal communication) correctly notes that the better Egyptian scholarship acknowledges the presence of Africans in the later dynasties. He also acknowledges that the extent of their participation in the very early melting pot remains unknown. Finally, he observes that there is no record of Black Africa's influence in the Anglo literary cannon (which is why it is absent from his literature review). The French-African literary cannon is not afflicted by such silences.

Accounting historians have often fallen in line with historical convention in seeking the genesis of accounting in the gentility of a White, European, Christian aesthetic, shunning the barbarian enigmas of the Dark Continent. The Western appreciation of the Nubian empire (and its cultural legacy to the Egyptians, Greeks, Romans, and eventually the West) underscores the point. 'Proof is now established that Nubian monarchy is the oldest in human history' (Diop, 1991). Even before the Western archeological discoveries of Nubia, Herodotus and Diodorus Siculus gave testimonies on Nubia. Herodotus wrote that the abundance of gold in Nubia was such that the African prisoners were tied with gold chains; as Cheikh Anta observed, the term Nubia derives from the word 'gold'; and Xenophon mentioned the Nubians' presence among Ethiopian soldiers (he described them as 'burned Faces') and in the Persian armies (see Herodotus, 1899; Herminghausen, 1964; Snowden, 1970).

Accounting in Ancient Africa

How might we describe accounting in Africa in a manner that recognizes that its practices are informative to us today? There is no *a priori* necessity for double-entry bookkeeping to be part of accounting; indeed, even in Western definitions it sometimes hardly merits a mention in the usual laundry list of 'recording', 'communication', 'financial quantities', 'classifying', 'communicating', 'relevance', 'monetary measures', 'historical cost', 'current market values', etc. (Chambers, 1966; Ijiri, 1967; Sterling, 1970; Devine, 1985; Mattessich, 1987, 2000; Mouck, 2004).[21] The discovery of Schmandt-Besserat's work by Mattessich (2000) has further expanded our understanding of the origins of accounting—to counting and tallies. Greater tolerance for different definitions and origins of accounting have increased. Ostensible definitions provide an illusion of objectivity because such lists are typically grounded in real historical experience. What remains cloaked is the social mutability of definitions; that they serve particular purposes (Chomsky, 1969; Coward and Ellis, 1977; Marx, 1977, pp. 125–31; Arthur, 1979). Braverman, for instance, provides the example in regard to the concept of 'skill', showing its social mutability in medieval and capitalist eras (Braverman, 1974; see also, Hunt, 1986).[22]

The 75,000 BC tally record—the Blombos Ochre from South Africa—has already been noted. In the 1950s, a discovery in the small African fishing village of Ishango, on the border of Zaire and Uganda, challenged the prevailing view that the study of mathematics has its origins in ancient Egypt and Babylonia. The discovery was a small animal bone, 20,000 years old and inscribed with markings that appear to represent numbers.

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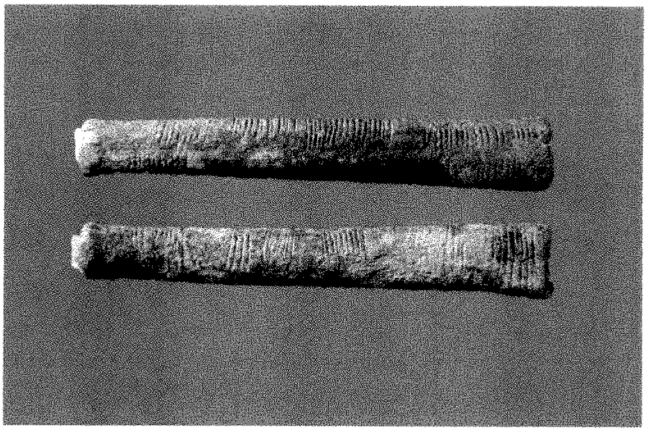
[21] A definition (of accounting) is a list of attributes of which, when they present, we can say that accounting itself is present.

[22] For guilds in pre-capitalist times, skill refers to craft mystery, a sometimes mystical or religious form of art. Under capitalism, the meaning of skill has transmuted into what is profit-generating.



The Ishango Bone[23] has been the subject of intense academic analysis and discussion, including a specially convened conference at the University of Brussels. The website for this conference (Brussels Museum for Natural Sciences, 2005) gives current links to publications and debates concerning the Ishango Bone (see also Zaslavsky, 1973). The bone was once thought to be a writing tool. It is 10 centimetres long, and at one end is embedded a piece of quartz thought to be for engraving and tattooing. Closer scrutiny reveals a series of notches running up the side of the bone, in three columns. The notches are clustered together as shown on p. 116.

Archeologists now consider the bone to be much more than an inscribing tool, or even the kind of tally as with the later artefacts found by Schmandt-Besserat. The bone is divided into three rows, which are presented horizontally in the above figure. Marks on the two outer rows each add to 60. The row on the left contains the prime numbers between 10 and 20, while those on the row on the right are quite consistent with a numeration system based on 10, since the notches are grouped as 20 + 1, 20 – 1, 10 + 1, and 10 – 1. Finally, the middle row seems to illustrate the method of duplication (multiplication by 2) used more recently in Egyptian multiplication. Recent studies with microscopes illustrate more markings and it is now understood the bone may have also served as a lunar phase counter.

These findings are remarkable if we remember that this is evidence of a mastery of mathematics that is even more advanced than that discovered, 12,000 years later, in the Schmandt-Besserat's excavations. The Ishango Bone indicates an understanding of a base 10 number system, a recognition of prime numbers, and of the importance (for reproduction) of the lunar calendar which has led some archeologists to speculate—humorously—that the first accountant was a women (Zaslavsky, 1973; Brussels Museum for Natural Sciences, 2005).

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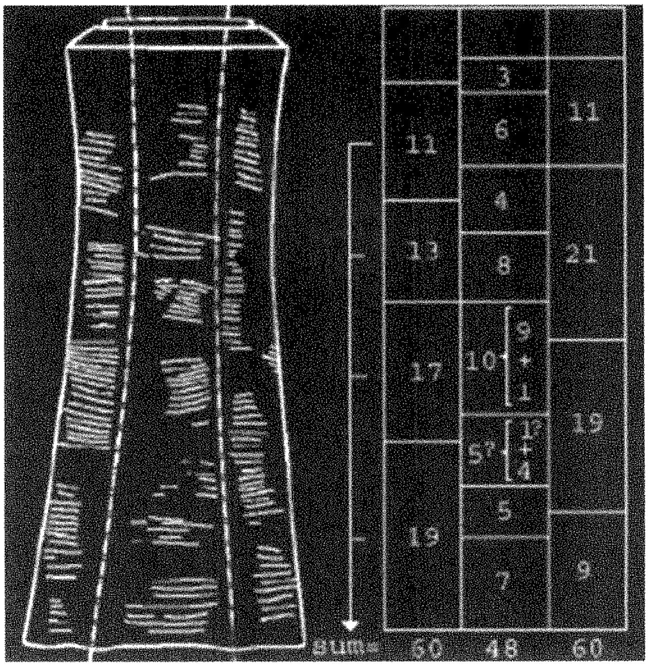
[23] This and the subsequent image of the Ishango Bone are reproduced here with the kind permission of the Museum of Natural Sciences, Brussels, which is the copyright holder.



Other archeological research also points to a great diversity of origins of accounting. The need to develop methods of counting and recording reaches back to the dawn of the formation of social life, and the struggle for survival. Palaeolithic man not only constructed stone tools, he set up systems of counting and record keeping. Artefacts from the period are evidence of this. Ambrose notes that the earliest of such artefacts came from Africa and are at least 40,000 years old (Ambrose, 1980, 1982, 1998, 2001a, 2001b; Ambrose and Sikes, 1991; Stott *et al.*, 2001; Balasse, 2002). The origin of collecting and decorating is African; the homeland of the original anatomically modern species of humans. In the late 1990s archaeologist Stanley Ambrose discovered, in a rock shelter in the Rift Valley of Kenya, a cache of beads made of ostrich eggshell, blanks and shell fragments. They are the oldest directly dated ornaments, dated at 40,000 BP. In a manner consistent with Schmandt-Besserat's more recent Uruk research (1996) of *c.* 8000 BC, Ambrose surmised that these artefacts or collectibles were used as money.

As with the 75,000 BC Blombos Ochre, Ambrose shows how the earliest signs of accounting and social life are to be found in Africa. Keeping records of quantities of the means of subsistence obtained by hunting, capture, gathering, collecting, exchange, agriculture and 'production', and the distribution of these quantities between consumption (now) and saving (future consumption), was a matter of great importance for early African societies. Rudimentary records (accountings) were vital to sustaining the life of the individual, the family and the tribe, each of which needed to cope with the seasonal rhythms of Nature: the migration patterns of animals, the seasons, weather patterns, breeding periods, etc. Encounters between early humans and Nature gave rise to the need to schedule and coordinate life—production and distribution—on Nature's terms.[24] This type of (ac)counting and recording clearly predated the practices of a fifteenth-century church estate in Italy.[25]

Africa: From the First Century to the End of the Empires

From the first century to the invasion and the occupation of Africa by the Europeans, the continent flourished with powerful and strong empires. The final European occupation and division was formalized at Berlin Conferences in 1884 and 1885, resulting in a disintegration that Africans refer to as their 'balkanization' (Hinsley, 1962; Boahen, 1985; Magstadt, 1994; Aronson *et al.*, 1996). The empires ended with the onset of the colonial period. Slavery instigated by the Western powers took place from 1510 to 1884–85, deprived Africa of millions of people, and destroyed its institutions. The exact numbers of deported people have yet to be established, but estimates range from 10 million to more than 60 million (Curtin, 1969; Cohen and Green, 1972; Engerman and Genovese, 1975).

Arabian slavery, although it was as barbaric as Western slavery, did not destroy social institutions; rather, many African kings enhanced the institutions of their enslaved peoples by hiring Arabian lawyers to serve as advisers in their administrations. It was Western colonization and slavery that comprehensively destroyed the Black empires.

The Mossi empire was located in present-day Burkina-Faso (Socquet, 1952). Its constitutional monarchy was its strength during the eleventh century. It was similar to the Ethiopian empire, which replaced the Nubian empire (Diop, 1960). The Ghanaian empire (*circa* third century) pre-dated Charlemagne's by five centuries. Black emperors held the throne for 1250 years (Ibn Khaldun, 1854; Fodio, 1898; Bakri, 1913; Diop, 1960). Ghana was located between the River Niger and the Atlantic Ocean, the Sahara and the edge of present Mali and included the upper part of Senegal. The boundaries of the Empire of Mali stretched from Gao to the Atlantic, from the Sahara to tropical forest. The Emperor of Mali Mansa Mussa (fourteenth century) exchanged embassies with Morocco, maintained commercial and diplomatic ties with Egypt, Portugal, etc. (Ibn Battuta, 1854; Ibn Khaldhun, 1854, 1863–68). The Songhai empire extended from the Niger River.

Economies and Commerce

According to the testimonies of Arabian travellers and writers who visited the Black Continent (Al Bakri, eleventh century; Ibn Khaldun and Ibn Battuta, both fourteenth century) and Black scholars (Sadi and Kati, both sixteenth century), the empires of Ethiopia, Mossi, Ghana, Mali and Songhai were wealthy states (in contrast with European writings that frequently recount tales of underdevelopment and deprivation; see Diop, 1960). The European version was far from the truth. Africa did not know famine until after the onset of the colonial period (in contrast to the European experience in the Middle Ages and before the industrial revolutions in Holland and England, where Europeans suffered several starvations). The cycle of famines prompted mercantilist economic writings and policies aimed at intervening in the European economy (Colbert, Mun, Malynes, Misselden and Petty, all seventeenth century; Boisguilbert, Quesnay, and Smith, eighteenth century; Johnson, 1937; Schumpeter, 1954; Wolff, 1978).[26]

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[24] This terminology is used deliberately in its classical economic sense, and should not be confused with contemporary meanings. For instance, in classical parlance, 'production' refers to any process that generates the means of existence, and not just factory work.

[25] Topics related to nature and economy in the very early forms of society were discussed extensively in the history of economic thought. What Rostow (1960) termed 'stages of growth' pre-existed more analytically in Marx's modes of production and, before Marx, in the writings of Bodin, Montchretien, and Cantillon. In even more detail, Steuart, Turgot (see Schelle, 1913–20), and Smith explored the importance of the difference steps of growth.

From the third century, at the beginning of Ghanaian empire and continuing for ten centuries, a growing and active trade existed in Africa, in centres such as Gao, Djenne, Timbuktu, Ghadames and Aoudaghast. African people exchanged between themselves as well as with the Asian, European and Arabian people (Caille, 1830; Dubois, 1897; Delafosse, 1913, 1922). Although navigable waterways were not strongly developed and used, the merchants employed animals such as camels (caravans), horses, donkeys and oxen as means of transport. Ibn Battuta describes: 'Having decided to visit the latter city [Mali], I hired but one Messufite to serve as my guide since there is no need to travel by caravan, for the roads are that secure' (quoted in Diop, 1960, p. 140).

Africa exported an abundance of gold, ivory, woods, jewelry, iron and tin to others continents. The continent imported a range of goods, including wheat, raisins, figs, Saharan salt, copper, dates, henna, olives, tanned hides, silk, cloth, brocade, Venetian pearls. Local commerce also flourished in cereals, cola nuts and beer. African trade included slaves and weapons (spears, javelins, arrows, bows). In East Africa (Monomotapa) the quantity of tin produced has been estimated at 30,000 tons per year in the tenth, eleventh, twelfth, fourteenth and fifteenth centuries. In West Africa, there was an advanced glass industry in Benin which is and discussed by Bakri (eleventh century), Ibn Khaldun and Ibn Battuta (both fourteenth century), Sadi and Kati (both sixteenth century), Dubois (1897), Delafosse (1913, 1922), Diop (1960), Sender and Smith (1986), and Jeffries and Moss (1997).

Social Structures

The African social structure was of prime importance to these economies. Crucial was the role of the Black emperor in understanding the way in which African states were governed. The African states' governance was centralized, and the role of the royal administration was fundamental. Governors of provinces and towns held posts as ministers in a royal administration. In the Songhai and Mossi empires these administrators were called, respectively, the Fari and the Balama; and the Rassam Naba, the Balum Naba and the Kidiranga Naba. The Rassam Naba was also the accountant and called the Bingo Naba.

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[26] Several laws were passed in Europe for this purpose (See Muns', Misseldens' and Malynes' treatises on trade). Colbert, the French Minister of Louis XIV, promoted this mercantilist intervention and was severely criticized by Adam Smith in his *Wealth of Nations* (1776). There was a famine in Timbuktu, but this was ephemeral poverty which occurred two years after the invasion of Morocco.

One of the prerogatives of an imperial administration was to regulate a fair distribution of national wealth; a function that subjects took to be an entitlement in exchange for which the administration obtained legitimacy. In African ancestral custom, this is what is taken to mean 'African Solidarity'. The head of state was a dignitary who gave this surety to his population. For example, in the eleventh century, the Emperor of Ghana, who is remembered as a man with massive quantities of gold, 'daily treated the people of his capital to ten thousand meals', which increased the growth of the population and caused the high density around the capital (Bakri, eleventh century).

Africa had an abundance of resources before the occupation, allowing the chief to resolve social distribution questions easily. The principal revenue resource of the state was gold, a metal that was plentiful on the continent. In Ghana, after the gold was mined, the emperor gave the population their share in the form of gold dust. The emperor retained the whole pieces—called native gold. According to Arabian travellers, the gold that belonged to the African emperors was formed into chunks; one chunk weighs fifteen pounds (Diop, 1960). The colonial powers were aware of this abundance, and even after the abolition of slavery, in many countries they remained in occupation. This prompted some African leaders to ask, 'Why do the Europeans still remain?' If they now admit that Europeans were right in abolishing the institution of slavery, 'Why do they stay in Africa to take us by the hand and show us the way?'[27]

African Accounting

African empires used the same system of taxation. These individual systems required legitimacy, and in the same vein they required highly skilled African accountants. There were three kinds of accountants in African empires before colonization: the public or royal accountant, the private accountant, and the family accountant. The public or royal accountant was also the economic officer of the city. In AD 1600, for example, he was responsible for collecting taxes-in-kind in the empires of Mossi and Ghana, and in gold in many other empires. The public accountant was charged with collecting all the revenues of the state. He was appointed by the Assembly of Wise and occupied a senior position in the central administration. For example, in the Mossi empire the accountant called Bingo Naba was Minister of Finances, the Guardian of the Treasury of Precious Objects, Coins and Bracelets, and the High Executioner. Diop (1960) notes that he was also 'a chief of the blacksmiths, and governed the canton of Kindighi'. Originally, the accountant Naba had been a slave.

Hierarchy was and is important in African society, but this is not hierarchy as understood in a Western sense. African hierarchy was crucial for redistributing an empire's wealth, and the accountant was integral to this process. In contrast, the Roman Empire typically underestimated the intelligence of slaves (the anomalous account of Spartacus in Roman history is evidences of this; see Fustel, 1930). In contrast, the Mossi empire chose the slave to be an accountant because of his moral qualities and specific skills. In the Empire of Mali, the royal accountant was chosen from the nobility (e.g., Mansa Djata, the grandson of the Emperor of Mali, Mansa Mussa). In Songhai, the public accountant was called the Fari or the Balama. 'Fari's' root is 'far', which means summit, apex, chief, and prince. The title of pharaohs also derives from far (Ibn Battuta, fourteenth century; Sadi and Kati, both sixteenth century; Dubois, 1897; Delafosse, 1913, 1922).

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[27] Regarding the discussion on colonialism, the work of Frantz Fanon, a Black writer from Martinique, remains amongst the best (Fanon, 1965a, 1965b, 1967, 1968).

The Empire of Ghana possessed a massive accumulation of gold, particularly in the city of Ghiaru (not far from upper reaches of present Senegal). This region had a dynamic international trade that took place at fixed market days during the week (Bakri, eleventh century; Diop, 1954, 1960, 1981). The royal accountant participated in market days to levy taxes for the emperor. The private accountant recorded the quantity of products exchanged and the amount of currency or money equivalent involved (salt, cows, gold, etc.). There could be several private accountants, who could be foreigners, sellers or buyers in the market. The familial accountant was the local counter and banker for families. Several families could combine to retain him to control the quantity of goods and currency. This tradition still exists in many African countries.

BABYLONIAN ANTECEDENTS[28]

Archaeologists and historians have found one of the oldest known records of commerce produced by a great civilization, which existed in the Mesopotamian Valley, located between the Tigris and Euphrates Rivers (Ancient Babylon). The record (shown on a monument) was discovered at Susa dated in 2285 BC. At least three distinct economic and social formations have been associated with this area: Sumerian, Assyrian and Babylonian.[29] The Near East has been one of the most dynamic centres of economic development since antiquity. As Brown stated it: 'So great was its influence that Babylonian became the language of commercial and political influence throughout the whole civilized world' (1905, p. 17).

Economies and Commerce

Babylon controlled Assyria, whose king paid bribes to the king of Babylon. Assyria was also an active business centre. The Assyrian civilization was sited near the Tigris, 2000 BC. Later, between 722 and 705 BC, Sargon II of Assyria founded the celebrated Dour-Sharroukin Palace near the towns of Nineveh, Sennacherib and Assurbanipal. The third civilization was the Sumerian (3000 BC), which left us a large number of writing tablets used for record-keeping, developed a trolley system as a means of transport, and pioneered new techniques in exploiting bronze. One thousand years later, Babylon added to the region's discoveries by developing irrigated canals (Harper, 1904; Brown, 1905; Luckenbill, 1927; Lambert, 1960; Kramer, 1963; Roux, 1966; Pritchard, 1969; Speiser, 1969; Schmandt-Besserat, 1992, 1996, 1999; Ezzamel and Hoskin, 2002).

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[28] Babylon is the location of modern Iraq. It is included here in the light of the current campaign to bring 'freedom, democracy, and civilization' to this region, and is a sobering reminder of this area's illustrious history.

[29] Today, this area that is called the Near East has been the focus of the recent U.S. occupation of Iraq. But even before the American occupation, the Mesopotamian Valley was a theatre of conflict and chaos, as instanced by incessant battles and wars under British colonization during the earlier decades of the last century, and during the recent Iraqi dictatorship of Saddam Hussein.

What made possible these flourishing economies? Under what conditions did they flourish? According to some fathers of political economy, an important factor was the colossal amount of labour.[30] An abundant supply of labour, and adequate institutions, were essentials to sustain production and growth in national wealth.[31]

Accounting Roles and Skill

As the economy expanded rapidly, business grew at the same time (Hoefer, 1852; Maspero, 1894; Harper, 1904; Brown, 1905; Chiera, 1938; Keister, 1963; Kramer, 1963; Alexander, 2002). Counting and reporting became vital to the economic development of these societies. Accountants documented the income and goods accruing to temples, tracked royal income, the tax levies for local administrations, the revenues for palaces, market days, commercial forums and private firms (who employed their own scribes). The Mesopotamian equivalent of today's accountant was the scribe. But he enjoyed a more expansive role than today's accountant (this was also true of the African accountant in the Mossi empire). His duties included at least three jobs beyond usual accounting work. The first employment involved governing provinces, the second involved ruling at court, and the third work as a barrister or lawyer. As Brown described it: 'The business of the central administration and of the provinces was carried out by the scribes, who seem to have combined the functions of the barrister, attorney, and accountant of the present day' (1905, p. 18).

A high level of skill was required of a scribe. Only a few people could read and write during antiquity, so scribes were rare. Practical reality made their work more demanding as well as more precious. The scribe constructed the signatures (names and religious symbols) that illiterate people (the larger part of the population) carried around their necks. Those items were put in a form of stone amulets engraved with the wearer's mark. Using clay to post his data, he had to work through a complex technical system. Clay was also used in Africa, Mossi, Egypt and Ghana to build houses.

The processing technique has been described in the following manner:

> The moist clay was molded into a size and shape adequate to contain the terms of the agreement. Using a wooden rod with a triangular end, the scribe recorded the names of the contracting parties, the goods and money exchanged and any other promises made. The parties then 'signed' their names to the tablet by impressing their respective seals.

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[30] See, for instance, Sir William Petty on Ireland, seventeenth century; Boisguilbert, Paris, seventeenth century; Francois Quesnay, Paris, eighteenth century; David Hume, Edinburgh and London, seventeenth century; Adam Smith, Glasgow, eighteenth century; Thomas Malthus, London, nineteenth century; David Ricardo, London, nineteenth century; and Karl Marx, Germany, London, Paris, nineteenth century.

[31] Even though these authors offer different views concerning economic development, they shared a widespread understanding regarding the importance of labour.

> After these impressions from the amulets were made, the scribe would dry the tablet in the sun or in a kiln for important transactions which needed a more permanent record. Sometimes a clay layer about as thick as a pie crust was fashioned and wrapped around the tablet like an envelope. For extra security, the whole transaction would be rewritten on this outer 'crust', in effect making a carbon copy of the original. Attempted alterations of the envelope could be detected by comparing it with its contents, and the original could not be altered without cracking off and destroying the outer shell. (Alexander, 2002)

IMPLICATIONS

This article invites accounting historians to suspend their instinctive predispositions and support a wider inquiry into our accounting heritage. This involves being open to learning from the past and present of peoples who may have been their colonized subjects. Such civilizations are radically different from our own materialistic culture: They were not and are not fully subordinated to the incessant ravages of technology; they do not live in a permanent state of flux, uncertainty, and insecurity, where personal identity is under constant attack as old skills are continuously displaced by new ones, and habits, customs, mores are correspondingly savaged (Illich, 1971; Illich *et al.*, 1977; Knights and Willmott, 1986; Dews, 1986; Murray, 1991). Our kind of anxiety society is not necessarily the apotheosis of civilization.

Pacioli, and especially Littleton's Pacioli, succumbs to the misplaced concreteness of double-entry bookkeeping. This foregoes opportunities (about accountancy) that, to this day, remains largely ignored. The complex residue of feelings of the West towards Black Africa continues to blight scholarship. Yet, even from the brief review of Babylonian and African material in this article, we find challenges to deeply cherished precepts that merit further research.

Can Western accountants learn from African accountants' role in securing (distributional) fairness within African society (with the concomitant social stability that it engenders)? If such an ethic had been more prevalent at (say) Andersen, in the tax departments of banks and the large firms, and in the accounting classroom, we might have averted some of the avaricious practices that have dragged our profession into disrepute. Is Pacioli's tireless, frenetic rooster, really the best we can offer as a role model for today's students? Even Littleton's emphasis on capital accumulation (of which bookkeeping is portrayed as such an indispensable ingredient) bears re-examination in the light of recent fiascos.

What other 'ingredients' might be indispensable? The distributional fairness inculcated by Babylonian and African accounting might prove an instructive source (Mouck, 2004). Scribes, steeped in a version of common law, were much more likely to bring an ethical and moral viewpoint to their accounting tasks than today's market-groomed buccaneers. Even the importance Pacioli attaches to female labour, and labour in general, is not a topic that figures prominently on the CPA exam (nor, of course, does accounting history). Perhaps such an 'ethic' might have better fortified us against our current woes, compared with the avariciousness practised by large firms that is still lauded—to this day—in many business schools. Normally, it wouldn't take much to persuade historians that history matters, but when it comes to whose history, we have much more work on our hands.

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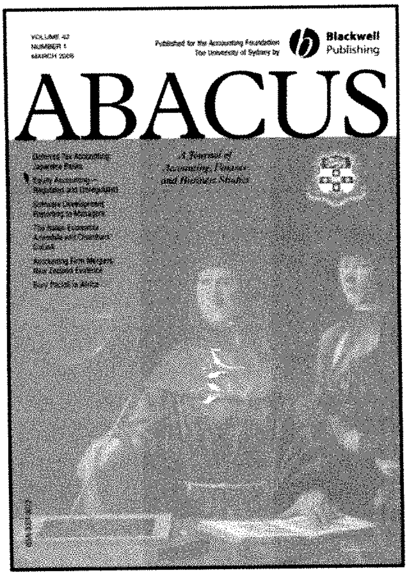

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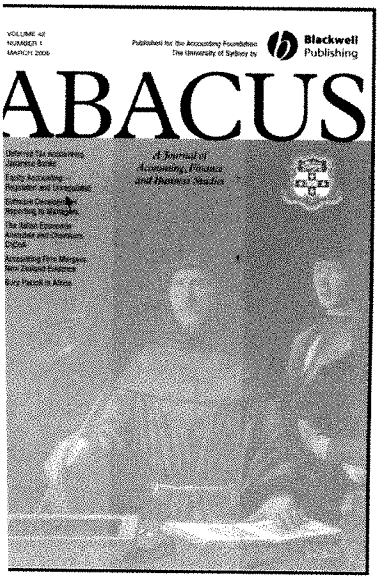

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COVER IMAGE:
Portrait of Luca Pacioli (1445–1514) by Jacopo de Barbari. Image reproduced with permission of the National Museum in Naples, Italy.

For over forty years, *Abacus* has consistently provided a vehicle for the expression of independent and critical thought on matters of current academic and professional interest in accounting, finance and business. The journal reports current research; critically evaluates current developments in theory and practice; analyses the effects of the regulatory framework of accounting, finance and business; and explores alternatives to, and explanations of, past and current practices.

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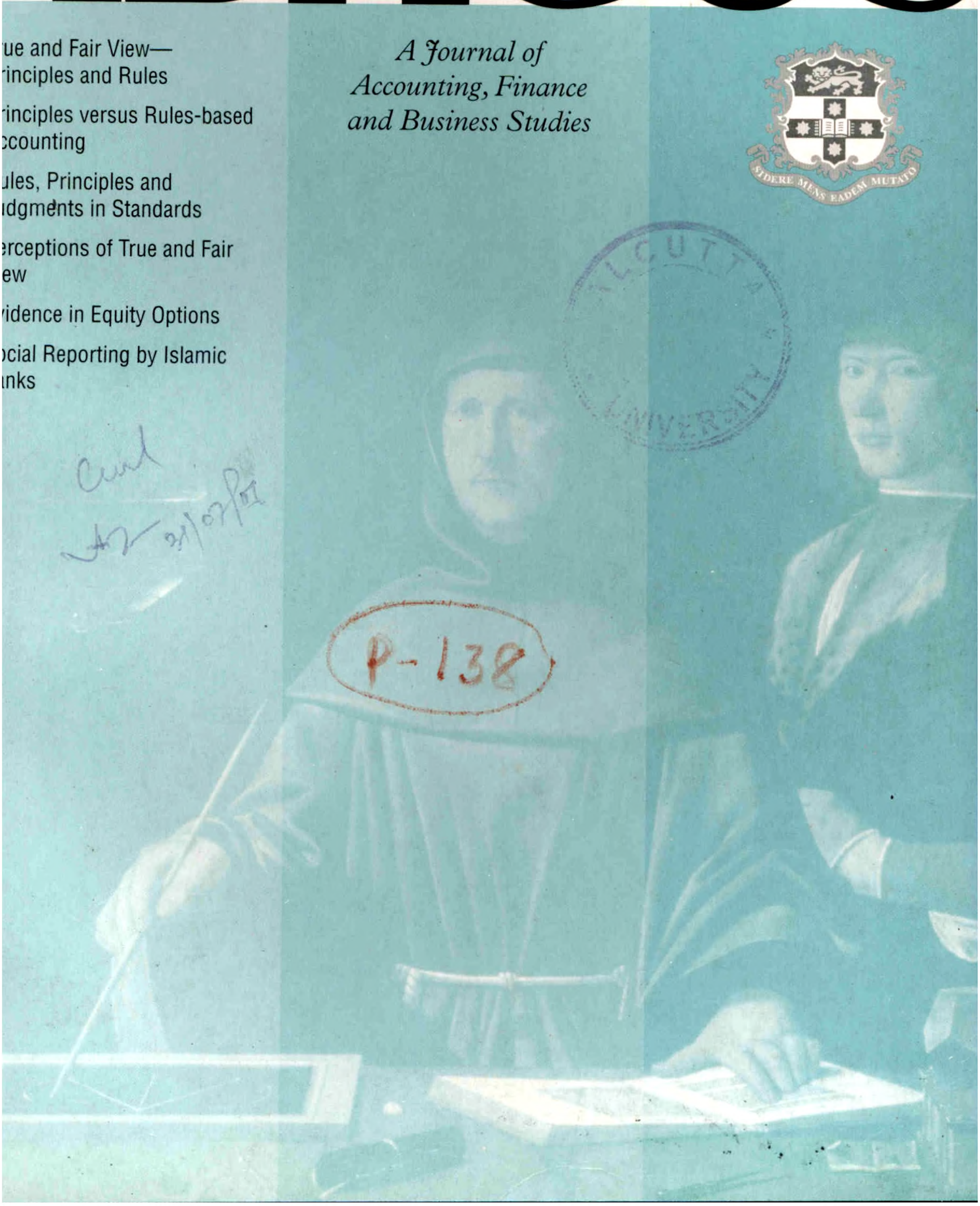

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ABACUS, Vol. 42, No. 2, 2006 doi: 10.1111/j.1468-4497.2006.00193.x

ABACUS REGAINS SSCI RECOGNITION

EDITORIAL

The current issue heralds *Abacus*' readmission to the ISI Social Science Citation Index. *Abacus* joins a set of elite accounting academic journals accredited by ISI. *Abacus* (together with many other recognized leading accounting journals) was dropped from the listing in the early 1990s and its readmission is due to the efforts of many, especially those of the editorial team including the Editorial Board, the copy editor, Carl Harrison-Ford, and our administrative assistant, Sheilah Whyte. Carl and Sheilah have worked assiduously on *Abacus* matters for over twenty years. Having myself been associated in an editorial capacity for the last twenty years at *Abacus* (the last twelve as editor), it is rewarding on many grounds to see *Abacus* readmitted.

ISI recognition is critical in this period of intense scrutiny of academic research outcomes by governments and others. Having eclectic journals like *Abacus* included in the ISI (something argued for in our application for readmission and which was strongly supported by our publisher, Blackwell) provides significantly enhanced opportunities for a broader set of research to be recognized as achieving 'excellence' by university boards, governments and other interested parties. It is, arguably, also possible that this could lead to a broader set of evidence-based information being drawn upon by regulators and standard setters in their deliberations on current problems.

I wish to acknowledge that ISI accreditation would not have occurred without the sterling support of all those authors who have had their manuscripts reviewed and published in *Abacus* over the last decade. And, of course, not to forget the efforts of the many referees (board members and the large number of *ad hoc* referees) who have shaped what has been produced in the journal over the last decade. Publicly, I wish to acknowledge and thank them for their efforts. Names of *ad hoc* referees who have assisted in the administration of *Abacus* over the last two years will be listed in the September 2006 Editorial. Letters of thanks will be sent to all authors who have published in *Abacus* over the last decade.

This issue contains the first in the series of special forums as *Abacus* moves in 2006 from three to four issues per annum. It entails an exploration of the Principles vs Rules debate currently engaging the minds of standards setters, practitioners and academics worldwide. The Forum Guest Editor (former editor and currently consulting editor of *Abacus*), Emeritus Professor Frank Clarke, provides an overview, including a brief précis of each forum paper. The Forum itself provides a snapshot of the myriad views that exist in this area, but importantly it also debunks some myths.

The second forum, with guest editor Stuart McLeay, will appear in the September issue. It will explore the possibility of evidence-based research assisting policy makers. Articles document the way many European countries and the U.S.A. are coping with the convergence to an international financial reporting regime (details appeared in the February 2006 Editorial). Other forums are proposed for publication in 2007 on distress prediction issues (with Professor Ed Altman as the guest editor) and in 2008 on a topic to be announced.

The subject matter and research methods of the other two articles in the current issue are varied. The first, by Ataullah, Higson and Tippett, assess the contribution that real (adaptation) options make to overall equity values. The authors suggest that this contribution applies for firms with market to book ratio (of equity) of around unity or less. As the market to book ratio grows beyond this level, however, the contribution made by real (adaptation) options decays quickly and equity values are mainly comprised of the present value of the dividends firms are expected to pay.

Malli, Casson and Napier continue the financial reporting theme, but from an Islamic accounting perspective. They note that: 'Islamic banks provide financial products that do not violate *Sharia*, the Islamic law of human conduct. The Islamic principles upon which the banks claim to operate give an important role to social issues.' They apply those principles, to develop a benchmark set of social disclosures appropriate to Islamic banks, comparing them, using a disclosure index approach, to the actual social disclosures contained in the annual reports of twenty-nine Islamic banks (located in sixteen countries) to this benchmark. Results suggest that banks required to pay the Islamic religious tax *Zakah* provide more social disclosures than banks not subject to *Zakah*.

Finally, this issue coincides with the release of the full data set of the R. J. Chambers Collection, details of which appeared in Vol. 40, No. 3. The website address is http://chambers.econ.usyd.edu.au/. Both that release and the readmission of *Abacus* to ISI listing are tributes to Chambers' vision so many years before.

Graeme Dean
The University of Sydney
March 2006

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FRANK L. CLARKE

FORUM: ANALYSIS AND EVIDENCE ON THE PRINCIPLES VS RULES DEBATE

Introduction: True and Fair—*Anachronism* or *Quality Criterion* Par Excellence?

It's curious how individuals use ordinary words without any discomfort in respect of their ordinary personal affairs, but as accountants have difficulty using the same words in respect of their clients' affairs. *True* and *fair* are cases in point. Whereas it seems that few in a business setting had much trouble with the words used either singly or collectively in the English language for about 130 years and informally for much longer (Chambers and Wolnizer, 1991), from about 1965 accountants, regulators, analysts and the like discovered that they didn't understand what the term meant. Possibly that was not surprising, for about the same time the same groupings found that they also did not understand what financial performance, wealth and financial position meant in the context of accounting.

A questionable claim of uncertainty regarding 'true and fair' and its connection with the current 'principles' or 'rules-based' accounting standards is a strong theme threading through the four contributions comprising the forum in this issue. Kirk demonstrates that the 'true and fair' criterion is perceived by New Zealand directors, auditors and shareholders to be quite different from 'fairly presents' and 'fair presentation'; Bennett, Bradbury and Pragnell argue that no sensible distinction is to be drawn between 'principles-based' and 'rules-based' accounting standards, except in respect of the degree of judgment required for the implementation of each. In contrast, Benston, Bromwich and Wagenhofer can identify such a distinction, arguing for a 'principles-based approach' with a 'true and fair override' to facilitate the exercise of 'professional judgment', while Alexander and Jermakowicz illustrate that 'much of the debate . . . is at best vague and confused, more likely disingenuous, and possibly intellectually dishonest . . . the basic [SEC] question [is] whether the financial statements perform the function of enlightenment . . .'

This last point bears contemplation. For recent disenchantment with the misleading financials of Enron, WorldCom, Sunbeam, Vivendi, Waste Magagement, HIH, One.Tel, Disney, Health South, Fannie Mae, Freddie Mac, and for instance

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Parmalat, more than illustrates that accounting in significant instances has misled and deluded. Frequently, it seems this has occurred within the framework of the 'rules', if not in keeping with the 'spirit' of them. In a curious twist, in many instances the outcomes of following the rules designed to 'protect' have emerged as the means by which their frailty has been most exploited.

Whether the IFRSs are more principles than rules based is contestable. Bennett *et al.* demonstrate the futility of the distinction anyway. When the Standards change, as they have just done in many jurisdictions with the introduction of the IFRSs, what was previously true and fair no longer satisfies the criterion. That invites numerous possible implications: what was reported to be true and fair in the past, what was certified by auditors, directors and the like to be true and fair—was not; that the present representations are not really true and fair, and those we had in the past were; or (say) neither meet the criterion; or perhaps that the true and fair criterion, notwithstanding its long history of functioning effectively, is not meant to convey anything substantial and is merely a kind of palliative sop from directors and auditors!

But the weight of the contributions to the forum increases the likelihood that sometime, somewhere, somehow, someone—such as a director or auditor—will be quizzed in court proceedings regarding what they have meant when they used the phrase 'true and fair'. And falling back on the notion that it means whatever the outcome from complying with the prevailing Standards, it is quite likely that they will be 'nailed to the wall' once 'true and fair' is expected to have some sensible implications. That is the function of the 'true and fair override' that Benston *et al.* support.

For example—imagine what would happen were a judge to expect that true and fair 'as ordinary words' be given their 'ordinary meanings'. How could anyone defend any other usage? And since the function of accounting is to inform, to 'enlighten' (as per Alexander *et al.*) and provide information about the financial characteristics of firms, how might the explanations turn were the judge to enquire whether the data in financials complying with the Standards are generally indicative of, or were serviceable for, deriving reliable indicators of an entity's wealth, financial performance, rate of return, earnings per share, debt to equity, solvency, asset backing, and the like. Imagine affirmative answers were given and further questioning pursued the inevitable agreement on the financial nature of those characteristics, and if it were asked whether the data in compliant financials generally were indicative of actual amounts of money or its equivalents possessed, accessible, and owed by the entity. Imagine, further, that an attempt was made to argue that those financial characteristics differed in the accounting context from how they are understood outside of it.

Outside of accounting, the overall requirement is that goods and services are 'fit' in the uses ordinarily made of them. That is the overall catch-all consumer quality criterion. Accounting provides a service. It produces financial data that are used—as a minimum—to determine and evaluate the wealth and financial progress of business entities and to derive their financial characteristics. The notion of 'fitness for use' or 'serviceability' is what the *relevant, reliable, comparable* and *understandable* criteria that frequently are set out in conceptual framework exercises coalesce into. Unless accounting data are serviceable, they cannot inform, cannot *enlighten*. But they certainly can confuse, mislead, befuddle and delude. That is exactly what financials generally do when certified as 'true and fair', merely because they have been prepared in compliance with the general run of Accounting Standards.

Virtually nobody has difficulty using *true* or *fair* in everyday discourse. Kirk illustrates that there is little difficulty, either, in the special setting of accounting. We all accept the words to be indicating a notion of correctness, accuracy, reliable description. Outside of accounting, we certainly never use those words seriously to mean: grossly misleading, incorrect, non existent, to imply something in the present when it existed in the past; something here and now, when it was never anywhere.

We never honestly say 'true' when we mean 'untrue', or say that something is 'fair' when we know it is unreasonable, hurtful or damaging in some way. Why is such abuse of language tolerated in accounting? The contributions to the forum give strong support to the view that it should not be.

REFERENCE

Chambers, R. J., and P. W. Wolnizer, 'True and Fair View of Position and Results: The Historical Background', *Accounting, Business and Financial History*, April 1991.

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DAVID ALEXANDER AND EVA JERMAKOWICZ

A True and Fair View of the Principles/ Rules Debate

The nature of 'reality' in the context of financial reporting is, at best, a generally agreed, inter-subjective human construction. This article considers the nature, and alternative perceptions, of the notions of principles and rules, exploring the idea of true and fair view presentation as a meaningful requirement in its own right, and as an override. An overview of the standard setting process in the United States from the historical perspective identifies factors fostering the rules-based accounting system. We then analyse recent developments in the United States regarding the adoption of a principles-based accounting system, and in the U.K. arising from the introduction of IAS in Europe. Both support the conclusions that: The purpose of financial reporting is to give an understanding, which is not misleading, of the underlying economics of an enterprise; the 'underlying economics' represents an inherently subjective construct; rules, by themselves, are inadequate, whether or not they are *based* on principles; major and fundamental differences exist between various players on the world regulatory scene; much of the debate at the regulatory and policy level is at best vague and confused, more likely disingenuous, possibly intellectually dishonest; interested parties will interpret words, concepts and agreements differently; significant limitations for international standardization are implied by the above points. Further, no one player, construct or culture can impose its will at a global level.

In 1942 the U.S. SEC aptly captured the appropriate sentiment: 'The basic question [is] whether the financial statements performed the function of enlightenment, which is their only reason for existence'.

Key words: Accounting; Judgments: conceptual framework; Rules: principles; Standards.

PREAMBLE

Recent signed editorials in *Abacus* (Dean and Clarke, 2004, 2005) have emphasized both the importance of the 'true and fair view' and 'principles v. rules'

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The authors acknowledge the input of ideas and material from Sylwia Gornik-Tomaszewski, of St John's University, The Peter J. Tobin College of Business. Comments on earlier drafts were received from Chris Nobes, Steve Zeff and Simon Archer, and from participants at presentations at the 2006 midyear meeting of the International Section of the American Accounting Association, and the 2005 and 2006 Annual Congresses of the European Accounting Association. Thanks are also due to Graeme Dean, Frank Clarke and the *Abacus* review and editing process. All opinions are the sole responsibility of the authors.

debates, and the close linkage between them. Although this whole area is of major topical importance, related to the stresses and strains of attempted international harmonization, these debates are by no means new. Tweedie (1983) quotes from an SEC report of 1942 as follows:

> We think, however, that too much attention to the question whether the financial statements formally complied with principles, practice and conventions accepted at that time should not be permitted to blind us to the basic question whether the financial statements performed the function of enlightenment, which is their only reason for existence.

The extent to which this philosophy has been supported and acted upon has vacillated sharply over the years, not least by the SEC itself.

This article makes no attempt at a comprehensive survey or summary of the literature. Evans (2003) provides a useful recent overview of the true and fair literature, and the trail of references can easily be traced back from that work and our own bibliography. The essential focus of the article is to explore recent developments and apparent attitudes from two different perspectives, firstly the U.S. one, and secondly that of the U.K. (in its European Union context), to the implications of attempted international harmonization. To do this effectively, some rigorous theoretical underpinnings are essential, and these are provided as necessary.

A frequent but implicit theme is the importance of considering the exact meaning of words and, more precisely, how the meaning of the same word changes in different contexts. Words are merely labels, often misleading ones. A convenient example is to hand. Dean and Clarke (2005, p. ii) state that: 'Understanding what is meant by "fair" is critical in any unravelling of the accounting and legal phrase "true and fair view" to describe an entity's state of affairs, and "fair value" measurement of an entity's assets and liabilities'. This is not accepted in either of the two posited examples, which should rather be seen as single portmanteau concepts—in effect, spelt with hyphens throughout. The 'fair value' case is being investigated elsewhere by one of the authors, but the true and fair case is developed in this article.

Finally, by way of preamble we should emphasize to non-Anglo-Saxon readers that it is absolutely invalid to assume a confluence of attitude within the 'Anglo-Saxon' world. See, for example, Alexander and Archer (2000) for an academic exposition of this 'myth' and, more recently, Bush (2005) for a more practice-based (and more polemical) investigation. It is perhaps worth remembering that the British and the Americans are unable even to harmonize the spelling of the word harmonise.

INTRODUCTION

In recent years, breakdowns in financial reporting, too many restatements of earnings and doubts about 'pro forma' earnings have prompted discussions about fundamental changes and reforms needed to provide assurance that financial reporting will be accurate, transparent and meaningful. Increasing detail and complexity of U.S. Generally Accepted Accounting Principles have been attributed to a rules-based rather than principles-based approach to standard setting. Rules-based standards, pejoratively referred to as 'the cookbook approach' by the chairman of the International Accounting Standards Board Sir David Tweedie amongst others, attempt to tell you what to do. This idea is contrasted with principles-based standards. There is no clear agreement on exactly what this means, as we discuss below. But in essence it suggests an attempt to tell preparer and auditor not what to do, but how to decide what needs doing. Put in this stark contradiction, the difference sounds extreme, and in practice elements of both are likely to be needed. However, the very future of the financial reporting process is at stake. Much of the debate is being conducted in practical, political or polemical terms, without a conceptual basis—without reference to underlying principles, one can reasonably say.

Critics usually contrast U.S. GAAP with U.K. GAAP and the International Financial Reporting Standards (IFRS) as examples of standards emphasizing broad principles and substance of transactions (e.g., Wriston, 2002; Sleigh-Johnson, 2002; Downes, 2002). Although the FASB standards are based largely on a conceptual framework, they are supplemented by very detailed interpretive and implementation guidance.[1] This focus on detailed rules is blamed for leading to accounting solutions that comply with the letter of the law rather than the spirit. According to former chairman of the U.S. Securities and Exchange Commission, Harvey L. Pitt, rules-based accounting standards have resulted in financial engineering techniques designed to achieve accounting rather than economic objectives (Pitt, 21 March 2002). In the United Kingdom, such detailed rules, referred to as *bright lines*, are viewed as obscuring rather than highlighting the underlying principle and encouraging literal interpretation and scope for avoidance (Tweedie, 2002; Lord Sharman of Redlynch, 2002).

This article seeks to establish, first, that the contents of financial statements are inherently subjective, being intersubjective constructions rather than mind-independent realities. It follows from this that accounting information may be perceived, presented and interpreted by different people in different ways. Second, particularly given the flexibility and inventiveness of the human mind, detailed regulations of the box-ticking variety can neither be complete enough nor relevant enough to tell us adequately what to do as accountants. Finally, absolute harmonization is both philosophically and inherently impossible.

REALITY AND ITS REPRESENTATION

> The profession must help lay down good rules of the road. Instead of getting mired in the false choice between 'rules-based' and 'principles-based' accounting, firms need to help craft 'objectives-based' accounting. New rules should ensure that the underlying economics of any company are reflected in the balance sheet. FASB should consider—and the accounting profession should support—adopting a rule similar to one the Securities and Exchange Commission (SEC) has on its books, which obliges companies to disclose any material information that ensures financial statements are not misleading, whether or not that information is specifically required.
>
> (Levitt, 2003)

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[1] Guidance is provided in the standards themselves and, after the standards are issued, by the FASB, the FASB Emerging Issues Task Force (EITF), the AICPA Accounting Standards Executive Committee (AcSEC), special task force groups, and the SEC for publicly traded companies.

This quotation is hardly jargon-free. But it addresses an issue both fundamental and topical. What is meant by 'the underlying economics' of a reporting entity is necessarily central to any attempt to discuss, or improve, the functional operation of the accounting and reporting function. The whole approach to the construction and specification of accounting regulations and standards is being discussed, indeed disputed, both between nations and within the International Accounting Standards Board (IASB), and within the United States.

There are two crucial questions related to the Levitt quotation. The first one is: What are the underlying economics and how can accountants present them (if, indeed, they can present them at all)? The second is: What do we mean by 'not misleading'? Not misleading to whom, and from what?

If we accept Levitt's proposition that we are trying to 'reflect' the 'underlying economics' of a company in its financial statements, then we must immediately note that a reflection, or a representation (U.S.), a view (English) or an *image* (image, French) or a *Bild* (picture, German) cannot itself be the underlying object itself. But what *is* the nature of the underlying object—the real thing. Indeed, in what sense is there a real thing at all?

This problem in accounting has been addressed by a number of writers, including Thomas (1969, 1972), Heath (1987), Sterling (1988) and Mattessich (1995). Mattessich (Ch. 3) addresses the question: Is income a mere concept, or does it have empirical reality? He takes exception to criticisms of accounting concepts such as income and stockholders' equity, which have been expressed by writers such as Heath (1987) and Sterling (1988). Examples of such criticisms are: 'income does not exist in the real world any more than a family with 1.6 children exists in the real world . . . stockholders' equity is simply a name' (Heath, 1987, pp. 2–4); and 'With rare exceptions accounting numerals do not represent phenomena, *any* phenomena . . . there are no phenomena that correspond to the numerals that appear on financial statements' (Sterling, 1988, pp. 4–5).

Mattessich's reply to these criticisms is based on reasoning similar to Searle's (1995) theory of institutional facts and his concept of 'collective intentionality'. According to Mattessich, social reality is a 'level' of reality, to be distinguished from physical-chemical, biological and psychic levels.

To use Searle's terminology, many species of animals, especially humans, have a capacity for *sharing* intentional states such as beliefs, desires and intentions. Thus, in addition to the intentional states of individuals, there are shared or collective intentional states, that is, collective intentionality (Searle, 1995, pp. 23–6). By virtue of collective intentionality, ownership claims, income and other conceptual objects of accounting can, under appropriate conditions, be *institutional facts*. Note carefully that this argument only applies, by definition, to those who are willing to be part of the collective. Institutional facts can only exist for those who are willing and able to accept the institutions.

The question then arises of whether social reality, including institutional facts, can exist independently of our collective representations of them. Searle (1995, pp. 191–4) accepts that they cannot, though he notes that a socially constructed reality such as money presupposes the existence of a non-socially constructed reality such as metal, paper and electronic records out of which the former is constructed.

Thus, Searle's position is that (a) under appropriate conditions, a firm's profit becomes (is objectified as) an 'institutional fact', but also (b) this does *not* mean that profit is real, or has a real-world referent, in the *external realist* sense of existing *independently* of the collective representations which lead under appropriate conditions to its objectification. It does not exist outside the human mind.

But if external realism is rejected as an ontological basis for accounting, we need an alternative basis. We would argue that this is offered by 'internal realism' as proposed by Putnam (1981). Putnam (1981, pp. 49–52) described external realism and his alternative to it, internal realism, as follows:

> [According to the perspective of] metaphysical realism, the world consists of some fixed totality of mind-independent objects . . . Truth involves some sort of correspondence relation between words or thought signs and external things or sets of things. I shall call this perspective the *externalist* perspective . . . [As regards what] I shall refer to as the *internalist* perspective . . . it is characteristic of this view to hold that *what objects does the world consist of*? is a question that it only makes sense to ask *within* a theory or description . . . [S]igns do not intrinsically correspond to objects, independently of how those signs are employed and by whom. But a sign that is actually employed in a particular way by a particular community of users can correspond to particular objects *within the conceptual scheme of those users.* 'Objects' do not exist independently of conceptual schemes.

Thus, according to internal realism, the objects of accounting do not exist independently of a conceptual scheme that relates accounting concepts to each other and to their empirical referents. They do not exist independently of the human mind. But this does *not* mean that such objects are not real. The objects of accounting are part of an *economic reality* that is *socially* (i.e., *intersubjectively*) constructed and objectified by virtue of *collective* intentionality (but only to the extent that such collective intentionality actually exists).

Given the nature of accounting reality as analysed above, we now need to consider the epistemological issue of what we mean by a truthful representation of such reality. How is 'truth' in financial reporting to be defined? In its definition of 'representational faithfulness' the FASB's Statement of Accounting Concepts No. 2 (FASB, 1980) states that representational faithfulness is 'correspondence or agreement between a measure or description and the phenomenon that it purports to represent'. As in the case of external realism, such a theory of truth in financial reporting, which may be characterized as a correspondence theory of truth, has an intuitive appeal. However, it was shown above by reference to Searle's analysis of *institutional facts* that external realism (as normally understood) is not a suitable ontological theory for accounting.

As Searle (1995, p. 154) points out, on a normal interpretation a *correspondence* theory of truth implies external reality, since it implies that there is a reality to which statements correspond if they are true. Hence, by contraposition, not-external reality implies not-correspondence theory of truth (on a normal interpretation of the latter). In particular, internal reality (a form of not-external reality) is incompatible with a normal interpretation of a correspondence theory of truth. Given that Searle (1995, pp. 191–4) rejects an external reality position on social reality, logically he should also reject a correspondence theory of truth (as normally interpreted) in the same context. Thus, the argument above implies the need for a different theory of truth in accounting. Indeed, it leads towards Putnam's view of truth:

> Truth in an internalist view, is some sort of (idealized) rational acceptability—some sort of ideal coherence of our beliefs with each other and with our experiences *as those experiences are themselves represented in our belief system*—and not correspondence with mind-independent or discourse-independent 'states of affairs'. (1981, p. 50, emphasis in original)

To distinguish it from a correspondence theory of truth, such a theory of truth may be called a coherence theory.

The contrast between 'coherence' and 'correspondence' as theories of truth in accounting may be illustrated by reference to Warren S. Buffet's now celebrated set of Socratic questions about the accounting treatment of stock option compensation plans (Zeff, 1997):

> If stock options are not compensation, what are they?
> If compensation is not an expense, what is it?
> If an expense should not be included in the income statement, where should it go?

Buffet's implied criticism of the proposal to exclude the value of stock option compensation plans from the amount of compensation expense reported as such in the income statement does not seem to be a criticism made on the grounds that the proposed treatment *lacked correspondence to some external reality*. Instead, it is more easily understood as a criticism made on the grounds that the proposed treatment *lacked coherence* with our shared beliefs as to what constitutes compensation and how compensation should be reported in financial statements.

The above philosophically grounded arguments are based directly on, and are further developed in, Alexander and Archer (2003). But the use that we need to make of these arguments here is different to the thrust of that article. Our focus here is on the approach to the creation of accounting regulations. The essential point is that the 'underlying economics of any company', as a 'reality', cannot exist independently of a conceptual scheme agreed between human actors. It necessarily follows that a representation of that 'reality' which is regarded as having a reasonable correspondence to that reality by those who *do* accept the relevant conceptual scheme, may not be so accepted by those who do *not* accept that conceptual scheme.

PRINCIPLES AND RULES

Alexander (1999), further developed by Nobes (2000) and Alexander (2001), distinguishes three different levels of regulation, which are summarized in Table 1.

Type A and Type B ideas are both generally regarded as principles, but there is clearly a distinction between them. Further, there are degrees of 'principle-ness'

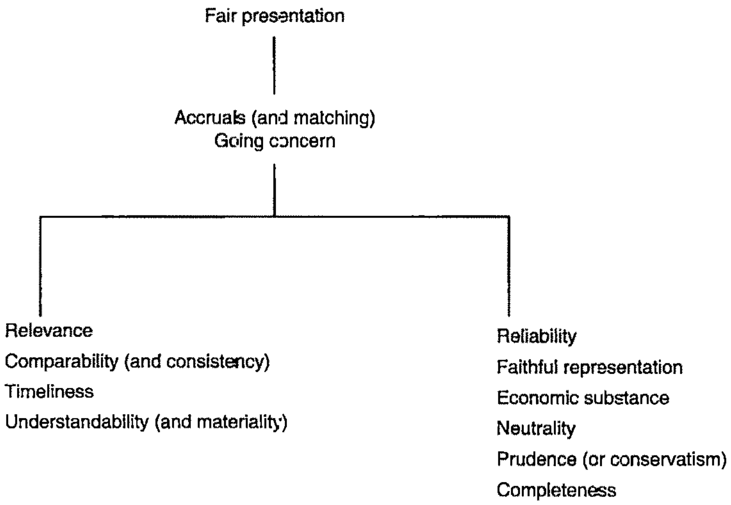
TABLE 1

THREE LEVELS OF ACCOUNTING AND FINANCIAL REPORTING REGULATION

Type	Content	Examples
A	A generally expressed all-pervasive fundamental concept	True and fair view, fair presentation, reflection of the underlying economics, nonmisleadingness.
B	A set of notions, conventions or ways of thinking which are to be consistently applied to situations both familiar and unfamiliar	U.S. Statements of Financial Accounting Concepts (FASB), U.K. Statement of Principles (ASB, 1999) and the IASB Framework (IASC, 1989)
C	The detailed provision of specific methods for the treatment of all expected problems and situations	The French *plan comptable*, German company laws together with tax regulations, a Soviet style chart of accounts and related instructions and forms, and the U.S. GAAP hierarchy

FIGURE 1

SIMPLIFIED SCHEMA OF IASB CONCEPTS



even within Type B. A schematic version of the essential concepts of the IASB Framework is shown in Figure 1. The hierarchical nature of this structure is explicit. Some of the principles are more general, or more 'principle-ish', than others. Reliability and prudence are both presented as Type B, but one is a subordinate contributor to the other. Matching is an 'underlying assumption' but reliability is a 'qualitative characteristic' according to the IAS Framework. It is important to realize that the word 'principles' is used with a whole spectrum of precise implications.

A similar point applies to the Type C rules. It seems reasonable to suggest that the requirement in the European Fourth Directive that 'fixed assets with a finite useful life shall be depreciated' is a *rule*, being an application of the *principle* of matching. But clearly 'motor cars used as fixed assets shall be depreciated at 25% per annum on the straight line basis assuming zero scrap value' would be a significantly more detailed (rule-ish) rule.

Nobes (2005), discussing the distinction between principles and rules, fails, like us, to provide good dictionary-type definitions, but explicitly refers to Alexander's (1999) Type A and Type B requirements as being principles, and the Type C as being rules. He states that (2005, p. 26): 'The use of the terms "principles" and "rules" seems broadly consistent among Alexander (1999), Nelson (2003), Schipper (2003) and [Nobes (2005)]'. We accept this statement, though perhaps with an 'emphasis of matter' on the inclusion of the word 'broadly'.

THE EUROPEAN APPROACH TO PRINCIPLES-BASED ACCOUNTING

The prime legal requirement for financial reporting in the European Union is that financial statements must give a 'true and fair view' (TFV) of the company's state of affairs and financial results. The TFV legal requirement for financial reporting has been established as a concept in European law through the Fourth Company Law Directive (Directive 78/660/EEC), and later extended to consolidated accounts through the Seventh Company Law Directive (Directive 83/349/EEC). Article 2(5) of the Fourth Directive *requires* preparers of financial statements 'in exceptional cases' to depart from the provisions of the directive in order to give a true and fair view. It is important to note that there are *three* possible views concerning the true and fair concept (or any other Type A concept for that matter). These are: (a) It has no meaning, and no effective existence; (b) it is important, as a catch-all *addition* to detailed regulations; and (c) it is important as an addition to, and if necessary an overriding alternative to, detailed regulation.

The implementation of the TFV legal requirement in the EU Member States has been complicated by differences in their legal and accounting systems, as well as by translation challenges. Article 2(3–5) of the Fourth Directive has been transposed in the national legal systems of the EU Member States in different ways. In particular, the override clause has not been transposed in the legislation of Germany, Austria and Sweden (EC, 1998a, 1998b).

The TFV concept originated in the United Kingdom, considered to be a stronghold of principles-based accounting and a cradle of the true and fair view override. The U.K. Companies Act of 1948 required that published annual reports should do two things, namely: (a) Present a true and fair view of the state of affairs and the results, and (b) follow any relevant detailed legal requirements (of which there were relatively few at that time). Further, it explicitly made clear that if doing (b) was inconsistent with doing (a), then (a) was more important. In other words, (a) can override (b). Thus, if a requirement of the Act would not lead, in a particular situation, to a true and fair view, then that requirement must (not may) not be followed. No definition was, or ever legally has been, offered of 'true and fair view'. TFV is obviously a Type A criterion in the earlier typology. But it is not of itself overriding—it is only the further explicit statement in the Act which gives it the extra overriding status.

Subsequently, the TFV requirement has been 'exported' to some Commonwealth countries, and with U.K.'s accession to the EU it became part of the European law. The concept has remained without definition in the EU law and its meaning has therefore been subjected to different interpretations (Milanov, 2002).

This overriding requirement can also be traced into IAS No. 1, *Presentation of Financial Statement* (IASC, 1997), where the Europeans supported it but the U.S. objected. It remains, though in an ostensibly restricted form, in the new IAS 1 (2003). The 1997 decision was reported (*Accountancy*, 1997) as follows:

> IAS1, *Presentation of Financial Statements*, was approved but not without the usual argument over the true and fair override which has been left in the standard. Essentially the US, Canada and Australia do not believe in it but the UK and most European countries do. The SEC's Mike Sutton made his disapproval of the final standard clear at the meeting, though he had already written to the IASC to say that the true and fair override was unacceptable to SEC staff.

There is not the space here to discuss all the ramifications of applying the TFV override in U.K. practice. An interesting survey is given in Company Reporting (1997). This shows that many examples of its use (but not all) are *supported* by Standards, rather than demonstrating a departure from them. For example, the U.K. Standard on Investment Properties (SSAP 19), as issued in 1981, accepted without argument that its requirements for regular revaluation conflicted with the then U.K. Companies Act requirement that 'fixed assets with a finite useful life shall be depreciated' (a requirement inserted at the behest of the European Fourth Directive). Following the Standard's requirements (which are most certainly 'generally accepted') *required* the use of the Companies Act's TFV *override*, as the Standard itself explicitly noted.

The principles involved in TFV can be well illustrated by a more recent and non-U.K.-centric example. Here are extracts from a news item (accountingeducation.com, 2004), downloaded on 16 February 2004:

> On February 6th, 2004, the Venezuelan government increased foreign exchange rate from 1,600 (the price since the beginning of the exchange control on February 2003) to 1,920 bolivars to the dollar.
>
> The currency drought imposed by Foreign Currency Administration Committee (Cadivi), forced many companies to buy dollars in the parallel market at a price that has fluctuated around VEB 2,700. And this had an instant manifestation on the final prices of their products and created a problem for the accounting and the translation of financial statements.
>
> The Venezuelan Federation of Public Accountants (FCCPV) issued the Technical Publication 13, related to the 'Exchange rate at the year-end to translate amounts in foreign currency'.
>
> The American Institute of Certified Public Accountants (AICPA) believes that U.S. GAAP does not permit the use of a black market exchange rate since such a rate was

not objectively determinable. Instead, transactions should be translated at the official exchange rate and if there was more than one official exchange rate depending on the type of transaction (e.g., dividend remittances), then the appropriate exchange rate should be used.

According to AICPA (see http://www/aicpa.org/download/belt/200303_04.pdf page 15 +) the following disclosure considerations should be made in the above circumstances:

Given the current situation, whatever rate is used for remeasurement purposes or translation of financial statements may not be reflective of economic reality. Accordingly, additional disclosure may be appropriate. Potential disclosures that would be relevant include the following:

- Summarized financial information (level of detail required by 1-02(bb) of Regulation S-X) on the Venezuelan operations in a note to the financial information in dollars with the exchange rate that was used. This information would have to reflect the parent company's basis (e.g., push down goodwill recorded in consolidation).
- Disclosure of the exchange rate that is used.
- Disclosure of the net monetary assets and liabilities by currency—(e.g., bolivars, dollars, etc.).

In addition, it may be helpful to include in MD&A disclosure of the impact of a change of 100 VEB in the exchange rate—income statement, equity and balance sheet implications. For example, if the rate changes from 1,920 to 2,700 VEB, what is the impact?

This quotation explicitly states that the required U.S. GAAP 'may not be reflective of economic reality', attributing this view to the AICPA. In other words, to return to Levitt, the U.S. GAAP fails to 'ensure that the underlying economics are reflected in the balance sheet'. The suggested solution is the weak palliative of leaving the balance sheet 'wrong' and adding further information in the Notes. This would be an example of using what we have described as view 2 of the true and fair concept. It could be argued as being consistent with a 'not misleading' extension, but could also be argued as merely creating obfuscation and confusion. If U.S. promulgated GAAP insists on putting pseudo-reliability over genuine relevance to such an extent as to assume that black market rates are unacceptable because they are 'not objectively determinable', then arguably an *overriding* overall principle, that is adopting our view 3 of the true and fair concept, is the only way to achieve a clear and understandable statement reflecting the underlying economics of the situation here described.

If one wishes to follow the overriding argument, one has to accept the trade-off with possible dangers from a reduction in reliability. There are, for example, likely to be a variety of black market rates, and even once an 'appropriate' one has been chosen there may well be considerable problems of auditability. The choice between relevance and reliability can never be absolute in the abstract. But either we are making a serious attempt to portray the 'underlying economics' or we are not. Whether the view 2 approach to this little case study, leaving the accounts themselves 'wrong', leads to an overall picture which is 'not misleading' seems highly doubtful. It is not at all obvious to us that an 'objectives-based' approach, discussed below, would resolve the dilemma here.

U.S. GAAP AND THE MEANING OF FAIR PRESENTATION

The term 'generally accepted accounting principles' (GAAP) encompasses the conventions, rules and procedures necessary to define accepted accounting practices at a particular time. It includes both broad guidelines of general application and detailed practices and procedures (AICPA, 2001). It is important to recognize that the word 'principles' as used in the extremely widely accepted term GAAP does not have the same meaning as 'broadly agreed' between Alexander (1999), Nelson (2003), Schipper (2003) and Nobes (2005), and therefore does not have the same meaning as used in the earlier (or, indeed, most of the later) parts of this article. The British co-author recalls telling students in the 1970s and 1980s that: GAAP in the U.S. stood for generally accepted accounting principles; GAAP in the U.K. stood for generally accepted accounting practices; and the two terms, in their different contexts, meant (i.e., represented) exactly the same thing.

Before the reforms of the 1930s, only securities exchanges and some state laws regulated the contents of financial statements. In 1917 the American Institute of Accountants (AIA) published a memorandum, *Approved Methods for the Preparation of Balance Sheet Statements*, which became the first official statement of GAAP. This memorandum was later rewritten, and under the new title *Verification of Financial Statements*, was endorsed by the Federal Reserve Board in 1929 (Benston, 2003). Following the stock market crash of 1929, an AIA special committee started cooperation with the New York Stock Exchange (NYSE) on improving accounting practices. As a result of this cooperation, five broad principles of accounting were recommended and the statement, '[the financial statements] fairly present, in accordance with accepted principles of accounting consistently maintained' was introduced into the auditor's report. In the recommendation the AIA followed a 'disclosure' approach to accounting policy practiced by Price Waterhouse & Co., a firm with British roots (Zeff, 2005). This approach can be summarized in the following quotation from the AIA recommendation:

> Within quite wide limits, it is relatively unimportant to the investor what precise rules or conventions are adopted by a corporation in reporting its earnings if he knows what method is being followed and is assured that it is followed consistently from year to year. (Zeff, 2005).

In 1933, the NYSE adopted the principles and required newly listed companies to send audited financial statements to their shareholders (Benston, 2003).

In 1934 U.S. Congress completed approval of two major Acts—Securities Act of 1933 and Securities Exchange Act of 1934—to restore public confidence in the fairness of the securities markets. The second Act created the Securities and Exchange Commission to protect investors by developing and standardizing financial information of publicly traded companies. One of the important units created in the SEC is the Division of Corporate Finance, which is charged with reviewing periodic filings by public companies to determine whether they satisfy the SEC's requirements, especially for conformity with proper accounting, full disclosure and comparability.

From the beginning, the SEC rejected any deviation from historical cost accounting. It used its power to remove from registrants' financial statements appraisals, estimates of future income, and any other deviations from numbers based on actual market transactions. This was a reaction to the widespread practices of the 1920s to overstate assets and net income. Otherwise, the SEC did not use its power to define GAAP but delegated its authority to AIA (and its successor AICPA). In 1938, in Accounting Series Release 4, the SEC ruled:

> where financial statements files . . . are prepared in accordance with accounting principles for which there is no substantial authoritative support, such financial statements will be presumed to be *misleading* or *inaccurate* despite disclosure contained in the certificate of the accountant or in footnotes to the statements provided the matters involved are material. (SEC, 1938; emphasis added).

'Substantial authoritative support' was defined to be procedures adopted by the public accounting profession, although the SEC retained the authority to intervene to countermand or establish a rule (Benston, 2003; Walker, 1992). The quoted statement signifies a clear departure by the SEC from the traditional British 'disclosure' approach to accounting policy, and marks a turn towards rule-based accounting. However, it is worth noting that the statement also clearly rejects the argument that 'wrong' accounts can be 'corrected' by additional disclosures in the notes.

In 1936, the AIA published *Examination of Financial Statements*, which introduced the term 'generally accepted accounting principles', known as GAAP (Zeff 2005). It also created the Committee on Accounting Procedure (CAP), which during the years 1939 to 1959 issued fifty-one Accounting Research Bulletins (ARBs) to provide the SEC with 'substantial authoritative support' for proper accounting practice; the AIA did not endow the committee with authority to issue ARBs until 1938/1939.[2] The CAP was criticized for making insufficient progress in creating accounting rules and replaced by the Accounting Principles Board (APB) in 1959. The APB, whose mission was to develop an overall conceptual framework, issued thirty-one Opinions and four Statements. In the late 1960s, however, a series of accounting scandals erupted and the APB came under fire for lack of productivity. The 1970s were a decade when company executives were awakening to the strategic importance of flexibility in the choice of accounting methods, especially when engineering, or defending against, company takeovers. Questions were raised whether a part-time board, such as the APB, could stand up against such pressures, because the accounting firms represented on the board had clients with vested interests in the outcome of the board's deliberations (Zeff 2005).

In 1971 the accounting profession's leaders, anxious to avoid governmental standard setting, appointed the Study Group on Establishment of Accounting Principles, known as the Wheat Committee. The Wheat Committee's recommendations resulted in the demise of the APB and the creation of the first full-time accounting standards-setting body in the world, the Financial Accounting Standards Board (FASB). The FASB was created and organized by the AICPA in 1972 but actually succeeded the APB on 1 July 1973. It was headquartered in Norwalk, Connecticut, and created as a body independent from the AICPA, the SEC and corporate America.

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[2] Zeff (2005) observes that in almost all countries other than the United States, if the government regulator was created to secure compliance with GAAP, it was years or even decades after an entity charged with determining GAAP was established. In his opinion, the United States is the only country where the government regulator was created and began its operations before an entity was established to determine what GAAP was to be.

The FASB has been quite productive in issuing standards and interpretations. But the industry practitioners and users of the financial statements have been demanding more and more detailed rules to cover just about every possible 'what if' accounting scenario. In 1984 the FASB created the Emerging Issues Task Force (EITF), which resulted in the issuance of more rules and clarifications to satisfy this demand. Therefore, the U.S. accounting system evolved into a plethora of rules over the past few decades.

The TFV legal requirement with its override implications has not been adopted in the U.S. regulatory system. Rather, an independent auditor's report contains an opinion as to whether the financial statements present *fairly*, in all material respects, an entity's financial position, results of operations, and cash flows in conformity with GAAP.[3] The AICPA SAS 69 (1992), entitled *The Meaning of 'Present Fairly' in Conformity with Generally Accepted Accounting Principles*, codified in AU Section 411 of AICPA Professional Standards, explains the meaning of 'present fairly . . . in conformity with GAAP'. It states, that the auditor's opinion should be based on his or her judgment as to whether (AICPA, 2001, Par. 04):

- The accounting principles selected and applied have general acceptance;
- The accounting principles are appropriate in the circumstances;
- The financial statements, including the related notes, are informative of matters that may affect their use, understanding, and interpretation;
- The information presented in the financial statements is classified and summarized in a reasonable manner, that is, neither too detailed not too condensed;
- The financial statements reflect the underlying transactions and events in a manner that presents the financial position, results of operations, and cash flows stated within a range of acceptable limits, that is, limits that are reasonable and practicable to attain in financial statements.

The AICPA admits that although independent auditors agree on the existence of a body of GAAP, the determination that a particular accounting principle is generally accepted may be difficult because no single reference source exists for all such principles. Therefore, SAS 69 presents a hierarchical list of sources of established accounting principles that are generally accepted in the United States. The GAAP hierarchy, as applicable to nongovernmental entities, can be summarized as follows:

Level A—FASB Statements and Interpretations, APB Opinions, and AICPA Accounting Research Bulletins (for SEC registrants, SEC rules and interpretative releases have equal authority);

Level B—FASB Technical Bulletins, AICPA Industry Audit and Accounting Guides, and AICPA Statements of Position;

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[3] An identification of the country of origin of those GAAP also is required (AICPA, 1992, sec. 508.08*h*).

Level C—Consensus positions of the FASB's EITF and AICPA Practice Bulletins;
Level D—AICPA accounting interpretations, 'Qs and As' published by the FASB staff, as well as industry practices widely recognized and prevalent.

SAS 69 states further that, in the absence of a pronouncement covered by rule 203 (ET section 203.01) or another source of established accounting principles, the auditor of financial statements may consider other accounting literature, such as: FASB Concepts Statements; AICPA Issues Papers; International Financial Reporting Standards (IFRS); Governmental Accounting Standards Board (GASB) Statements, Interpretations, and Technical Bulletins; Federal Accounting Standards Advisory Board (FASAB) Statements, Interpretations, and Technical Bulletins; accounting textbooks, handbooks, and articles; and other sources.

The appropriateness of other accounting literature depends on its relevance to particular circumstances, the specificity of the guidance and the general recognition of the issuer or author as an authority. As an example, the AICPA indicates that FASB Conceptual Statements would be more influential than other sources in this category. But the mere fact of placing the FASB's conceptual framework in the 'other accounting literature' category diminishes its role as a source of accounting principles and underscores the prominence of detailed accounting standards and their interpretations (i.e., of rules) as pillars of fair presentation.

The GAAP hierarchy implies that application of accounting principles promulgated by a body designated by the AICPA Council to establish such principles, pursuant to rule 203 (ET section 203.01) of the AICPA Code of Professional Conduct, almost always results in the fair presentation of financial position, results of operations and cash flows. Nevertheless, rule 203 provides for the possibility that literal application of such pronouncement might, in unusual circumstances, result in misleading financial statements. The rule 203 states:

> The question of what constitutes unusual circumstances as referred to in rule 203 (ET section 203.01) is a matter of professional judgment involving the ability to support the position that adherence to a promulgated principle would be regarded generally by reasonable men as producing a misleading result.

Examples of events which may justify departures from GAAP are new legislation or the evolution of a new form of business transaction. An unusual degree of materiality or the existence of conflicting industry practices are examples of circumstances which would not ordinarily be regarded as unusual in the context of rule 203 (ET section 203.01).

Referring to the applicability of the 'unusual circumstances exception' in rule 203, Van Hulle (1997, p. 718) noted: 'The representative of the SEC argued that—although there is an over-ride test in the auditing standards in the US—no registrant with the SEC had ever applied the over-ride in its financial statements'.

Although fair presentation in the United States is generally understood as fair presentation in conformity with GAAP, it must be pointed out that substance of transactions is emphasized over form. Specifically, paragraph 06 of the discussed auditing standard AU Section 411 states: 'Generally accepted accounting principles recognize the importance of reporting transactions and events in accordance with their substance. The auditor should consider whether the substance of transactions or events differs materially from their form.' This statement clearly expresses the belief of the U.S. accounting profession that application of GAAP results in fair presentation, because the objective of accounting standards is to report the economic substance of transactions (or economic reality, as in our earlier discussion).

The multilevel and complex GAAP hierarchy came under severe criticism in the wake of Enron and other accounting scandals. Benston (2003) suggests that GAAP, by increasingly becoming rules- rather than principles-based, contributed to recent auditor failures in the United States. He argues that the rule-based application of GAAP was fostered by the FASB and the SEC:

> The existence of a rules-making government agency, the SEC, also has influenced the US approach to GAAP. Although the SEC initially forbore from writing detailed accounting rules, it found it could not administer the securities acts efficiently in the absence of rules. Regulation S-X was enacted in 1940 and expanded as corporations and IPAs [Independent Public Accountants] sought protection from both lawsuits and criticism, and as opportunistic promoters and managers developed ways to 'beat the system.' Indeed, as the SEC emphasizes, manipulation of accounting numbers became more profitable. When some scandal uncovered financial accounting that appeared misleading or inadequate, public, press, and political criticism led to more rules. The FASB, in turn, was established to write such rules, and it did so assiduously. Its propensity to develop rules with extensive and detailed illustrations, interpretations, and instructions resulted, I believe, from its having both a large budget and a professional full-time staff. GAAP then develop into a set of specific rules, not unlike the tax code, which must be followed to the letter, but not necessarily (or at all) according to its intent.

In other words, the U.S. regulatory system became a victim of its own success. Effective regulation of U.S. capital markets has only been possible through strict adherence to the letter of GAAP. Table 2 compares the relative importance of

TABLE 2

RELATIVE THEORETICAL IMPORTANCE OF THE THREE LEVELS OF REGULATION IN ESTABLISHING PRINCIPLES-BASED ACCOUNTING STANDARDS—COMPARISON BETWEEN THE IASB/EU/U.K. APPROACH AND THE PRE-SARBANES-OXLEY U.S. APPROACH

Type		IASB/U.K./EU	U.S.
A	True and fair view, fair presentation, reflection of the underlying economics, nonmisleadingness	Most important	Fair presentation achieved exclusively through adherence to GAAP; TFV override not applicable
B	Conceptual Framework	Subordinated to A and C	Low in GAAP hierarchy
C	Financial Reporting Standards	Subordinated to A	Most important

Note: In day-to-day operational terms, with most common transactions the Standards will be followed in all cases. But that is not the point at issue. Note also that the IASB (and U.K.) Conceptual Frameworks are explicitly stated to be used as the basis for dealing with any reporting issue not covered by Standards. This contrasts with the U.S. position, where the Conceptual Framework rests below level D (i.e., off the scale) in the formal hierarchy of GAAP specification given in SAS 69.

the three levels of regulation, as discussed in this article, in establishing principles-based accounting standards in the pre-Sarbanes-Oxley U.S. and in selected other jurisdictions.

The U.S. rule-based approach fell short of the objectives of financial reporting and goals of the audit function, as defined by auditing theory. Consider the following quotations from Mautz and Sharaf (1985).

> The auditor's concern must be with the goals of the generally accepted principles and not with their letter. An approach sometimes followed is one that finds acceptable any method or presentation that is 'not misleading.' Such a negative attitude should not be condoned and certainly does not satisfy the concept of accounting propriety. Surely the auditor should insist upon something more constructive than the mere absence of injury; unless a practice actually aids and furthers understanding, it should be held deficient.
>
> First auditing must determine whether the given presentation does meet the requirements of generally accepted principles of accounting; second auditing must determine whether the application of generally accepted principles of accounting in the particular case does result in a satisfactory reflection of the truth . . .
>
> Truth in auditing may be defined as conformity with reality as the auditor can determine reality at the time of his examination and with the evidence available.

These quotations are interesting in several respects. First of all, they unequivocally maintain that a mere following of the rules is not enough. Second, they explicitly suggest that taking an extension beyond the rules to the extent of ensuring a 'not misleading' presentation is also *not* enough. Such a 'negative attitude' is thoroughly rejected. Third, the statement that an 'auditor can determine reality' is not accepted here, given our earlier discussions concerning truth and reality. An arm's-length (veil of ignorance) appraisal of whether the financial statements *appear* to be *coherent* with the *perceived* reality is surely the most that could be claimed. Still, even with this caveat, responsibility placed on an auditor's shoulders by Mautz and Sharaf seems very much greater than that existing under the U.S. regulatory system.

Recognition of these shortcomings became apparent in the wake of the Enron and Arthur Andersen debacle. An overhaul of the regulatory and standard setting functions was in order. This led to a basically new, deeper understanding of fair presentation. Reference to fair presentation in more recent regulations can be found in Section 302 of the Sarbanes-Oxley Act (Pub. L. No. 107-204, 2002) and the SEC's rules (Release No. 33-8124, *Certification of Disclosure in Companies' Quarterly and Annual Reports*, 29 August 2002), which require CEOs and CFOs to certify that the company's financial statements and other financial information present fairly the financial condition and results of operations of the company. Simple adherence to GAAP, however, is no longer enough in the context of these regulations. The SEC (2002) explicitly states that:

> The certification statement regarding fair presentation of financial statements and other financial information is not limited to a representation that the financial statements and other financial information have been presented in accordance with 'generally accepted accounting principles' and is not otherwise limited by reference to generally accepted accounting principles. We believe that Congress intended this statement to provide assurances that the financial information disclosed in a report, viewed in its entirety, meets a standard of overall material accuracy and completeness that is broader than

> financial reporting requirements under generally accepted accounting principles. In our view, a 'fair presentation' of an issuer's financial condition, results of operations and cash flows encompasses the selection of appropriate accounting policies, proper application of appropriate accounting policies, disclosure of financial information that is informative and reasonably reflects the underlying transactions and events and the inclusion of any additional disclosure necessary to provide investors with a materially accurate and complete picture of an issuer's financial condition, results of operations and cash flows.

The Sarbanes-Oxley Act, while it in no way suggests an override (our view 3 of a Type A concept), certainly seems to place explicit importance on nonmisleadingness, seen as an example of our view 2 of a Type A concept.

The SEC received clear instructions in Section 302 of this Act. It has, in character, interpreted the instruction that it 'shall by rule require' as an instruction to issue voluminous and detailed rules (SEC, 2002). These include the exact wording of the certification required, which 'may not be changed in any respect' (section 4). These are presented separately for different circumstances. That for Form 10-K begins as follows:

> I [identify the certifying individual], certify that:
>
> 1. I have reviewed this annual report on Form 10-K of [identify registrant];
> 2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;
> 3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report.

It continues in relation to internal controls including confirmation that the individual has disclosed his/her conclusions relating to internal control to the audit committee and to the auditors.

The most intriguing point about this quotation is something that Sherlock Holmes would have noticed immediately (remember the dog that didn't bark). There is no mention of GAAP. Fair presentation, in all material respects, is to be certified. Not: fair presentation in accordance with GAAP in all material respects.

The most important point, however, is surely the requirement to certify that the report does not 'omit to state a material fact necessary to make the statements made . . . not misleading'. This is clearly a requirement to do more than follow GAAP, that is, for the relevant enterprises, the nonmisleadingness is no longer 'subordinated to GAAP'. This point, together with the quotation (SEC, 2002) above, does indeed suggest that we have the beginnings of a fundamental change in attitude. The equivalent of a true and fair requirement, without an override, has been introduced in the relevant enterprises by the Sarbanes-Oxley Act.

U.S. DEVELOPMENTS POST SARBANES-OXLEY

The Sarbanes-Oxley Act of 2002 required the SEC to conduct a study on the adoption by the United States financial reporting system of a principles-based approach and to submit a report on the results of the study to Congress by July 2003. While the SEC staff was conducting its study, the FASB published a proposal for public comment on a principles-based approach to accounting standard setting. The proposal, issued on 21 October 2002, discusses potential improvement in the quality and transparency of financial reporting under this approach. The main differences between accounting standards developed under a principles-based approach and existing rules-based standards are summarized as follows (FASB, 2002):

1. The principles would apply more broadly than under existing standards, thereby providing few, if any, exceptions to the principles, and
2. There would be less interpretive and implementation guidance for applying the standards.

The FASB assessed that to develop principles-based accounting standards a complete, internally consistent and clear conceptual framework is needed. Because the existing conceptual framework is lacking these qualities, the Board would need to commit resources to an improvement project. Development of an overall reporting framework as in IAS 1, with a true and fair view override, was also considered.

The FASB's exposition of the whole issue began as follows:

> In response to [various] concerns, the Board decided to consider the feasibility of adopting a principles-based approach to U.S. standard setting, similar to the approach used in developing International Accounting Standards (IAS) and accounting standards used in other developed countries, such as the United Kingdom. In testimony before the U.S. Senate Committee on Banking, Housing and Urban Affairs, Sir David Tweedie, chairman of the International Accounting Standards Board (IASB), explained:
>
> > Many International Financial Reporting Standards (IFRS) are similar to US GAAP. Both international standards and US GAAP strive to be principles-based, in that they both look to a body of accounting concepts. US GAAP tends, on the whole, to be more specific in its requirements and includes much more detailed implementation guidance.
> >
> > We favour an approach that requires the company and its auditor to take a step back and consider whether the accounting suggested is consistent with the underlying principle. This is not a soft option. Our approach requires both companies and their auditors to exercise professional judgement in the public interest. Our approach requires a strong commitment from preparers to financial statements that provide a faithful representation of all transactions and a strong commitment from auditors to resist client pressures. It will not work without those commitments. There will be more individual transactions and structures that are not explicitly addressed. We hope that a clear statement of the underlying principles will allow companies and auditors to deal with those situations without resorting to detailed rules. (14 February 2002)
>
> Many, including the chairman of the SEC and members of Congress, have referred to the need for a similar approach to U.S. standard setting.

In *Accounting Horizons* Schipper (2003) discusses this proposal, in her individual capacity but as a member of FASB. The bulk of her coverage is summarized in the first paragraph of her conclusions (p. 71):

> In this commentary, I have argued that U.S. financial reporting standards are in general based on principles, derived from the FASB's Conceptual Framework, but they also

> contain elements—such as scope and treatment exceptions and detailed implementation guidance—that make them also appear to be rules-based. I discuss the effects on comparability, relevance, and reliability of these rules-based elements, with special attention to the effects of detailed implementation guidance. I emphasize that detailed guidance is intended to achieve comparability and pose an empirical question: How much comparability actually exists in U.S. financial reporting? An assessment of the potential sacrifice of comparability that some believe would surely accompany the adoption of principles-based standards requires, first, an understanding of the current state of comparability.

Careful examination of these two extracts makes it clear that Schipper's point of view is different from that expressed explicitly by Tweedie and apparently implicitly by FASB. Tweedie talks about requiring 'the company and its auditors to take a step back and consider whether the accounting suggested is consistent with the underlying principles . . . without resorting to detailed rules'. Schipper argues that U.S. standards are generally *based* on principles and then discusses advantages of having detailed implementation guidance. Her pragmatic approach recognizes the practical difficulties of implementing principles-based accounting in the United States. She points out that increased emphasis on relevance increases reliance on estimates and that is why the comparability and verifiability are so important.

We argue that maybe the need for comparability is overstated and, if the comparability characteristic is misunderstood, even harmful. If firms A and B buy identical cars on 1/1/01, and A has a long-applied policy of trading in cars after three years and B has a long-applied policy of trading in cars after five years, does comparability require an identical depreciation charge in the year 01? If firm C buys a property to use as its offices, and firm D buys an identical property to use as an investment, does comparability require that both are depreciated? If firm E operates a retail outlet bought for $1m in 1970 and firm F operates an identical retail outlet bought for $3m, in 1990, is comparability achieved by applying the historical cost valuation model? Our answer is negative for all three questions. It may be argued that we are here setting up and attacking straw men. But the underlying point is a fundamental one. Applying the same detailed rule to contrasting situations is the very negation of comparability—indeed it is even worse than that, because it provides a pseudo-comparability which may fool and mislead the uninitiated. Relevance, for 'the company and its auditor' (Tweedie) requires flexibility. The control of flexibility requires principles.

The Proposal recognizes that the FASB conceptual framework, like its counterparts elsewhere, is 'incomplete, internally inconsistent, and ambiguous', referring in particular to FASB Concepts Statements Nos 2, 5 and 6. It then continues: 'Accounting standards with principles that apply more broadly than under existing [U.S.] accounting standards would require a conceptual framework that is *complete*, *internally consistent*, and clear' (emphasis added).

This requirement seems to be unnecessary and overreaching. Accounting may or may not be a social science, but it is most certainly not a pure science, and the concepts inherent in seeking to improve its usefulness and effectiveness are in a number of respects *inherently* contradictory. Internal consistency, as an absolute, is simply not possible.

In July 2003 the U.S. SEC released a staff study report prepared by the Office of the Chief Accountant and the Office of Economic Analysis on the adoption of a principles-based accounting system (SEC, 2003). As mentioned above, the SEC Staff Study was conducted pursuant to the provisions of ¶ 108(d) of the Sarbanes-Oxley Act of 2002. The Report was submitted to U.S. Senate and House of Representatives. The Commission itself has expressed no view regarding the analysis, findings or conclusions contained in the study.

The SEC Report concludes that neither U.S. GAAP nor international accounting standards, as currently comprised, are representative of the optimum type of principles-based standards. The Report urges a principles-based approach that clearly establishes the objectives of an accounting standard. Therefore, to distinguish the SEC Staff's vision of a principles-based approach to standard setting from those proposed by others, they refer to it as *objectives-oriented* standard setting. According to the Report, the objectives-oriented standard is based on an improved and consistently applied conceptual framework and provides sufficient detail and structure so that the standard can be operationalized and applied on a consistent basis. The standard, however, should avoid providing too much detail such that the detail obscures or overrides the objective underlying the standard. Standards should set out the accounting objective 'at an appropriate level of specificity' with 'an appropriate amount of implementation guidance'. Furthermore, the objectives-oriented standard should minimize exceptions from the standard and avoid the use of percentage tests, known as bright lines. Such bright lines allow for technical compliance with the standard while evading the intent of the standard.

The Report contrasts the optimal objective-oriented standards not only with rule-based standards, which are characterized by bright-line tests, multiple exceptions, a high level of detail, and internal inconsistencies, but also with principles-only standards. Such standards are defined in the study as high-level standards with little if any operational guidance. A principles-only approach is also rejected because it often provides insufficient guidance to make the standards reliably operational. As a consequence, principles-only standards typically require preparers and auditors to exercise judgment in accounting for transactions and events without providing a sufficient structure to frame that judgment. Consequently, the result of principles-only standards can be a significant loss of comparability among reporting entities.

The Report clearly and explicitly rejects the TFV override as a necessary component of a principles-based or objective-oriented standard setting system. We quote below point III(G) in its entirety to fully convey the presented argument:

> Some [the FASB] have suggested that a necessary component of principles-based standards is the inclusion of a 'true and fair override.' A true and fair override would permit a company to depart from accounting principles established by the standard setter (thus 'overriding' those standards) if the override results in a 'true and fair' presentation of the company's financial position, results of operations and cash flows.
>
> While we believe that it is important for preparers and auditors to determine that the financial statements clearly and transparently provide information to investors that allows them to evaluate the company's financial position, results of operations, and cash flows, we do not believe that a 'true and fair override' is a necessary component of a

> principles-based or objectives-oriented standard setting system. In fact, we would expect that an objectives-oriented standard setting regime should reduce legitimate concerns about the established standards not providing appropriate guidance, as the standards should be based on objectives that would almost certainly not be met by a presentation that was not 'true and fair'.
>
> While this view might seem, on the surface, to be inflexible, it is, in fact, grounded in the objectives-oriented standard setting model. There are various ways that the economics of an arrangement can be viewed and evaluated. Reasonable people can reasonably disagree on the economics of an arrangement. It is, however, precisely the role of the standard setter to define the class of transactions included within the economic arrangement and to then establish the appropriate accounting for that class of transactions. While not everyone will agree with the standard setter's conclusions, making the determination of the underlying economics of an arrangement and the appropriate accounting for that arrangement are integral to the standard setter's role. Thus, we believe that when the standard setter establishes standards under an objectives-oriented regime, the accounting should, in virtually all cases, be consistent with the standard setter's view of the nature of the economic arrangement.

Curiously. the last sentence of the first paragraph of the above quote is substantially and significantly incorrect. Rather, a true and fair override would *require* such departure if the *original* requirements did *not* result in a true and fair presentation. Further, the SEC staff makes the standard setter (the FASB) fully responsible for developing such accounting standards that, when properly applied, would always present a true and fair view of an economic entity. Surprisingly, however, in another part of the study (IB) the following passage can be found:

> Furthermore, through the PCAOB, the audit process and auditors will be more closely scrutinized. As the evaluation of auditors shifts from one of 'peer review' to that of PCAOB inspection, it will place an additional premium on the auditors' ability to evaluate both compliance with generally accepted accounting principles ('GAAP') and the adequacy of a company's disclosures in light of the underlying economic substance of the company's transactions.

This latter statement clearly suggests that being in compliance with GAAP and adequately disclosing the underlying economic substance of the company's transaction are not necessary one and the same. It will be recalled that the Sarbanes-Oxley Act has very explicitly allied itself with this latter view.

Consistent with the recommendations presented in the Study, the FASB has undertaken a number of initiatives aimed at improving the quality of standards and the standard setting process, including improving the conceptual framework, codifying existing accounting literature, transitioning to a single-setter regime, and converging FASB and IASB standards.

In July 2004, the FASB published its response to the SEC *Study on the Adoption of a Principles-Based Accounting System* (FASB, 2004a). In that response, the Board stated that issuing the GAAP hierarchy as a FASB standard, recategorizing the existing GAAP hierarchy into two levels of accounting literature (authoritative and nonauthoritative), and elevating the conceptual framework within the GAAP hierarchy are key objectives of achieving the FASB's goal of improving the quality of accounting standards and the standard setting process.

The SAS 69 GAAP hierarchy has drawn criticism because (a) it is directed to the auditor rather than the enterprise, (b) it is complex and (c) it ranks FASB Concepts Statements, which are subject to the same level of due process as FASB Statements, below industry practices that are widely recognized as generally accepted but are not subject to due process (FASB, 2005a).

In Exposure Draft, *The Hierarchy of Generally Accepted Accounting Principles*, issued by the FASB in April 2005, the Board is proposing to transfer the GAAP hierarchy standard from the auditing literature to the accounting literature. In this ED the Board proposed to carry forward the GAAP hierarchy as set forth in SAS 69, subject to certain modifications that are not expected to result in a change in current practice. These modifications are:

1. To carry forward the categorization of the sources of accounting principles by document type and not by their characteristics.
2. To expand the sources of category (a) to include accounting principles that are issued after being subject to the FASB's due process.
3. To present FASB Staff Positions and FASB Statement 133 Implementation Issues, which are not addressed in SAS 69, as sources of category (a) principles (FASB, 2005a).

The proposed standard is the initial step towards simplifying the GAAP hierarchy, and the underlying reason for the proposed standard is to allow the Board to (a) codify all existing GAAP as authoritative and nonauthoritative, and (b) improve the FASB Concepts Statements and elevate these to authoritative GAAP.

> The Board expects to address the complexity of the GAAP hierarchy at the conclusion of its codification and retrieval project . . . The Board expects to address the role of the FASB Concepts Statements in its conceptual framework project. The Board acknowledges that its Concepts Statements meet the characteristics of category (a) accounting principles, even though the Concepts Statements currently explicitly state that they do not constitute GAAP. The Board also observes that the Securities and Exchange Commission recommended that the FASB's conceptual framework be designated as authoritative literature once improvements to the framework have been completed. The Board further observes that the International Accounting Standards Board (IASB) accords its conceptual guidance a higher standing in its hierarchy than that which the present GAAP hierarchy accords the guidance in the FASB Concepts Statements. Because the FASB's and the IASB's goal is to converge their concepts and standards, the Board acknowledges that it will need to consider whether and how to converge the hierarchy for its accounting literature with that of the IASB as part of the conceptual framework project that the Board is conducting jointly with the IASB.
>
> In light of Rule 2003 and the FASB's and the IASB's goal to converge their concepts and standards, the Board discussed whether an enterprise should have the ability to depart from the GAAP hierarchy in the unusual instances in which selection of an accounting policy in accordance with the GAAP hierarchy results in financial statements that are, in management's judgment, misleading. The Board believes that the selection of accounting principles in accordance with the GAAP hierarchy results in relevant and reliable financial information. Therefore, an enterprise cannot represent that its financial statements are presented in accordance with GAAP if its selection of accounting principles departs from the GAAP hierarchy set forth in this Statement and that departure has a material impact on the financial statements. (FASB, 2005a).

Some critics believe that the FASB should incorporate in this process the concerns that nonpublic (i.e., private) companies and their users of financial information have in the current accounting standards setting environment. Several groups representing private company constituents encouraged the Board to demonstrate its responsiveness to the needs of the users of private company financial information expressly in the interrelated (a) hierarchy standard, (b) Codification project and (c) Concepts Statements project (FEI, 2005).

The FASB admits that the journey towards more objective-oriented standards is long and difficult. It will require shifts in attitude, behaviour, and expertise of preparers and auditors. The FASB describes the difficulties as follows:

> Many preparers and auditors have become less willing to express professional judgment in areas involving accounting estimates, uncertainties, and inherent subjectivity. Instead, they have been requesting detailed rules and bright lines in an apparent effort to reduce the need for the exercise of judgment in inherently subjective areas. Increased accountability for the accuracy of financial information under the new requirements related to the Sarbanes-Oxley Act coupled with a fear of 'second guessing' by enforcement agencies and the trial bar are frequently cited as reasons for this behavior. (FASB, 2004b).

In the next section we provide specific examples illustrating the shift towards principles-based approach in developing new accounting standards in the United States. The selected standards address issues related to business combinations and consolidated financial statements.

EFFORTS TOWARD CONVERGENCE OF ACCOUNTING STANDARDS

Most people seem to believe that international convergence of accounting standards across the major capital markets of the world is highly desirable. The Chairman of the FASB believes that in the U.S. many also support a move toward a more principles-based system, feeling that standards have become too complex and too detailed with too many rules emanating from too many bodies (Herz, 2002).

At the first FASB–IASB joint meeting in September 2002, in a decision later formalized by a memorandum of understanding now known as the 'Norwalk Agreement', the two boards agreed to try to eliminate the differences between their existing standards in the near term and to work together on long-term projects to ensure that the principles behind, if not the wording of, new standards will be the same. This is not convergence for convergence's sake but an attempt to develop a single set of high-quality standards that can be used internationally, improving the consistency and quality of financial reporting worldwide (Tweedie, 2004).

This convergence effort has received strong support from the SEC and the European Commission, as well as from the corporate community throughout the world. From 2005, listed companies in the European Union are required to prepare their consolidated accounts in accordance with IFRS (Regulation (EC) 1606/2002) and Member States have an option to extend this requirement to unlisted companies and individual accounts. Several other countries will require or permit use of IFRS in the near future. A survey conducted by Deloitte and Touche shows that more than ninety countries would either require or permit use of IFRS for listed companies by 2005 (Deloitte and Touche, 2003).

The memorandum's issuance followed decisions by both boards to undertake key initiatives to converge U.S. GAAP and IFRS: a short-term convergence project, longer term joint IASB-FASB projects including revenue recognition and purchase method procedures, the coordinated project on share-based payments, Liaison IASB member on site at the FASB, the convergence research project and explicit consideration of convergence potential in all boards' agenda decisions.

Three years later, only a few standards have been converged. 'At this rate it will take us about 10 years to get all standards in line,' the Chairman of the IASB said (Tweedie, 2005).

The most difficult issues that the standard setters have to resolve in the convergence between U.S. GAAP and IFRS include consolidation policy and the use of fair value as a measurement attribute (Flower, 2004; Shipper, 2005). Whittington (2005) indicates two other challenges—accounting for financial instruments and performance reporting—which are linked to the use of fair value.

Moving more towards a principles-based approach on consolidation accounting issues, in June 2005 the IASB and FASB issued (first joint proposals) two new Exposure Drafts for public comment: one on business combinations and the second on consolidated financial statements. The principal changes being proposed include a requirement to measure the business acquired at fair value and to recognize the goodwill attributable to any noncontrolling interests (previously referred to as minority interest) rather than just the portion attributable to the acquirer. The proposals would also result in fewer exceptions to the principle of measuring assets acquired and liabilities assumed in a business combination at fair value. The boards also propose that noncontrolling interests be classified as equity within the consolidated financial statements and that acquisitions of noncontrolling interests be accounted for as equity transactions (IASB, 2005a, 2005b; FASB, 2005b, 2005c).

Although consensus has been reached between the IASB and FASB on the accounting and reporting for business combinations, a fundamental issue concerning criteria for filing consolidated financial statements needs to be resolved if convergence between IFRS and U.S. GAAP is to succeed. In the U.S. practice, the determination of whether one entity should consolidate another is often based on a majority-voting-interest criterion (quantitative approach) while the IFRS model is based on control, using professional judgment (qualitative approach).

Another challenge in conversion and development of high-quality financial reporting standards relates to fair value measurements. Fair value accounting is favoured by the IASB as the preferred basis for measuring assets on the grounds of relevance. With the introduction of IFRS in many parts of the world, the correct application of fair value on a consistent and transparent basis is vitally important. Although several recently issued FASB standards incorporate fair value measurements, under U.S. GAAP most assets are recorded at their depreciated historical cost. A key issue for convergence is whether fair value measurements can be accepted as having sufficient reliability in cases where observable market prices are not available.

The increasing use of fair values by the IASB is clearly an issue that raises concerns especially for auditors and regulators. According to Ernst & Young (2005):

> We are concerned that the IASB has placed too much emphasis on its view of what constitutes 'relevant' information and has given insufficient consideration to the other attributes, in particular reliability and understandability . . . The answer lies partly in recognizing the concept of financial reporting governance and taking action to ensure that all those involved in the financial reporting process adhere to its principles. Good financial reporting governance requires accounting standards to be set, applied, audited, interpreted and regulated in a way that translates into high-quality financial reporting that enables the markets to function effectively.

The IASB framework is intended to assist not only standard setters but also preparers of financial statements (in applying international financial reporting standards and in dealing with issues on which standards have not yet been developed), auditors (in forming opinions about financial statements) and users (in interpreting information contained in financial statements). In contrast, the FASB Concept Statements state that they do not justify changing generally accepted accounting and reporting practices or interpreting existing standards based on personal interpretations of the concepts. There are also other differences between the two frameworks. The boards would face difficulties in converging their standards if they base their decisions on different frameworks (Bullen and Crook, 2005).

The FASB and IASB have just begun a new challenging joint project to update, complete and converge their conceptual frameworks for financial accounting and reporting which would underline consistent principles-based accounting standards that promote decision-useful financial reporting. Many controversial and difficult to resolve issues include convergence about which external decisions and decision-makers should be the primary focus, as well as whether a single kind of general-purpose external financial report, primarily focused on the needs of one group of decision-makers, is the best way to provide the financial information needed by the wide range of decision-makers.

Since U.S. GAAP are famous for laying out detailed rules and Tweedie, on the other hand, is a well-known advocate of the principles-based approach, some question how it is possible to converge these contrasting philosophies. Tweedie (2005) notes the new standards will mark the point where the real debate starts:

> It may be that the U.S. says 'we need lots of guidance.' Well fine—put it in an appendix. We suspect that a lot of auditors will go to the U.S. standards and head for the appendix. But the fact is that you won't have to under international standards—you will be able to use your judgment.

Schipper (2005) predicts that the mandated adoption of IFRS in the EU will substantially increase demand for implementation guidance, and she considers it 'necessary to develop a converged mechanism for providing detailed implementation guidance that supports converged standards'. If the IASB declines to provide detailed implementation guidance for IFRS, she predicts that preparers and auditors will turn elsewhere, perhaps to U.S. GAAP or perhaps to jurisdiction-specific European GAAP, for that guidance. Similarly, a drive for comparative reporting will also increase the demand for a single European enforcement body.

Implementation advice may tend to push accounting models towards rules-based approaches and Schipper (2005) is also concerned that the Sarbanes-Oxley Act will lead to an even greater emphasis on a rules-based approach in the U.S. Some experts in the profession predict that the rules-based approach may become more dominant in the U.S.A. and Europe—despite recent criticism (Giner and Rees, 2005). The difference between the Tweedie (2005) attitude and the Schipper (2005) attitude is too obvious to require detailed discussion.

On 6 December 2005 Herz, speaking individually but as the then Chairman of the FASB, seems to wish to push a change of philosophy appreciably further than Schipper. He recognizes that a change in attitude needs to be wide ranging.

> Long touted by some as a strength of our reporting system, the detail and volume of accounting, auditing, and reporting guidance now pose a major challenge to maintaining and enhancing the quality and transparency of financial reporting to investors and the capital markets. Many, including some members of the FASB, believe that the current system has engendered a check-the-box, form-over-substance approach to accounting, auditing, and reporting by preparers, auditors, and regulators, sapping professionalism and increasingly necessitating the involvement of technical experts to ensure compliance. It has also provided fertile ground for those attempting to structure form-over-substance arrangements to obtain desired accounting outcomes. This complexity has also added to the costs and effort involved in financial reporting, which often fall disproportionately on small and private companies and their auditors. It has also created a black box view of financial reporting by many who are not familiar with the intricacies of the underlying accounting, auditing, and reporting requirements. For professional investors and analysts, it results in a lack of transparency and significant analytical complexity in using reported financial information . . .
>
> Unfortunately, over the last few years, counter to the goals of a principles-based system, at the FASB we have experienced a constant flow of requests for detailed rules, bright lines, and safe harbors from preparers and auditors. Many of those requests seem to stem from a fear of the potential consequences of second-guessing by regulators, enforcers, and the trial bar. Accordingly, some believe that changes in the legal, regulatory, and enforcement frameworks surrounding financial reporting are prerequisites for any move to a more principles-based or objectives-oriented system. Principles-based standards, it is argued, cannot succeed without more principles-based regulatory review and enforcement and without a more principles-based legal framework around financial reporting.

RECENT U.K. DEVELOPMENTS

As regards the European dimension in general, and the U.K. position in particular, there have been a number of recent developments. The U.K. Financial Reporting Review Panel has taken formal legal advice on 'The "True and Fair Requirement" and International Accounting Standards' (Freshfields Bruckhaus Deringer, 2005). It is worth quoting from this advice at some length.

> 11. The [1985 Companies] Act has been amended by the [European Union] 2004 Regulations. The Act still contains, in sections 226A and 227A, a specific obligation on all companies who do not prepare their accounts in accordance with international

accounting standards to prepare their accounts so as to give a true and fair view of the state of affairs of the company (or group). This obligation overrides any obligation to prepare accounts according to existing accounting standards. Sections 226A and 227A apply only to those companies which will continue to prepare their accounts in accordance with the provisions of the Act, so that the true and fair override does not apply to those companies which prepare their accounts in accordance with international accounting standards from 1 January 2005.

12. The 2004 Regulations also amend section 235 of the Act, so that the auditors' report must state whether a company's annual accounts give a true and fair view in accordance with the relevant financial reporting framework. Under Section 262 of the Act, as amended by the 2004 Regulations, the references to 'true and fair view' in section 235 are, for those companies who do not prepare their accounts in accordance with international accounting standards, references to the requirements in sections 226A and 227A that the accounts of a company (or group) give a true and fair view. For those companies who prepare their accounts in accordance with international accounting standards, references to 'true and fair view' are references to the requirement under international accounting standards that such accounts achieve a fair presentation (this requirement is further described in paragraph 14, below).

13. The IAS Regulation seeks to maintain the principle that a company's accounts should be prepared so as to give a true and fair view in two ways. First, any international accounting standard which the Commission is proposing to adopt must satisfy the requirement that it must not be contrary to the requirement for accounts to show a true and fair view of the financial position and performance of an enterprise.

14. Secondly, IAS 1, which was adopted under Regulation 2238/2004, requires companies to 'present fairly' their accounts. The requirements as to fair presentation are set out in paragraphs 13 to 22 of Regulation 2238/2004. The application of International Financial Reporting Standards, with additional disclosure when necessary, is presumed to result in financial statements that achieve a fair presentation. IAS 1 envisages that it may be necessary for a company to depart from strict compliance with a requirement in an International Financial Reporting Standard, International Accounting Standard or Interpretation. It is specifically stated that departures from a requirement should be extremely rare and should only happen where management concludes that compliance would be so misleading that it would conflict with the objective of financial statements set out in the Framework for the Preparation and Presentation of Financial Statements. IAS 1 provides that in such a circumstance a company 'shall' depart from the relevant requirement, but only if the relevant regulatory framework requires, or otherwise does not prohibit, such a departure. When such a departure is required, the company must make certain disclosures, including the nature of the departure and the reasons for it. Where the relevant regulatory framework does prohibit such a departure, a company must to the maximum extent possible minimize the perceived misleading aspects of compliance by making certain specific disclosures. As far as UK companies are concerned, there is nothing in the Act which prohibits any such departure by a company which prepares its accounts in accordance with international accounting standards.

Conclusion

15. IAS 1 requires companies to 'present fairly' their accounts. Companies subject to the IAS Regulation (either because they fall within Article 4 or because they choose to use international accounting standards under Article 5) will not be subject to the true and fair requirement as contained in sections 226A and 227A of the Act. Instead, they are subject to a requirement under the relevant Regulations which specifically requires them to comply with international accounting requirements except in extremely rare

> circumstances. The IAS Regulation provides that international accounting standards can only be adopted if they are not contrary to the principle that the annual accounts and consolidated accounts must give a true and fair view of the assets, liabilities, financial position and profit or loss of the company or group, as appropriate.
>
> 16. All other companies will still be required to prepare their accounts so as to give a true and fair view of the state of affairs of the company or group, as appropriate, and of the profit or loss for the financial year concerned.

We should note that the wording of IAS 1 in its current version not only allows the U.K. to apply an override, but would allow the U.S., if it was subject to IAS 1, not to do so—surely a triumph of political expediency over principled belief. But there is a more important point. The true and fair view referred to in paragraph 15 is the European Directives TFV. The departure from (International) Standards referred to in paragraph 14 to achieve fair presentation relates to the IASB's fair presentation. The TFV referred to in paragraph 16 is the U.K. Companies Act TFV. In principle, and legally, these are *three different concepts*. Whether they will be three different *practical* concepts remains an open question.

Thus, whether an IAS Regulation can be adopted by the EU is ultimately, presumably, a matter for the European Court of Justice to be decided against the criteria of the (revised) Fourth Directive. Whether such an endorsed regulation has been properly applied has to be decided against the criteria of IAS regulations, presumably, ultimately, again by the European Court of Justice. The U.K. TFV as in paragraph 16 is probably, or at least logically, a matter for U.K. courts, against the criteria of U.K. law and standards.

The U.K. Financial Reporting Council (FRC, 2005) is at pains to play down any difficulties. It concludes that despite the introduction of International Accounting Standards, and 'International Standards on Auditing (UK and Ireland)' (think about that title; Orwell would have loved it!):

> - the concept of the 'true and fair view' remains a cornerstone of financial reporting and auditing in the UK;
> - there has been no substantive change in the objectives of an audit and the nature of auditors' responsibilities; and
> - the need for professional judgment remains central to the work of preparers of accounts and auditors in the UK.

The FRC goes on to say:

> ***Departures from accounting standards***
>
> The position in relation to departures from accounting standards is substantively the same under the existing UK framework and IAS. Under both frameworks:
>
> 1. companies must depart from particular requirements of accounting standards if compliance is inconsistent with the requirement to give a true and fair view or fair presentation.
>
> 2. where companies are required to depart from a requirement, they must make similar disclosures including the nature of the departure, the reasons for it and the financial impact.

> 3. departures are expected to be rare. Under the UK framework, departures from accounting standards, which are contemplated by FRS 18 (paragraphs 15 and 16), are justifiable only 'in exceptional circumstances'. Under IAS, departures are expected to be 'in extremely rare circumstances'.
>
> It has been said that the use of the 'true and fair override' (a phrase that encompasses departures both from accounting standards and from a detailed accounting requirement of the Companies Act) will diminish as a result of the requirement to comply with IAS and that, as a result, companies' accounts will not show a true and fair view. That is to misunderstand the circumstances in which the true and fair override has been used in recent years in the UK. An analysis of the use of the 'true and fair view override' by Company Reporting Limited shows that in 96% of cases where the override was used, the override has been invoked to justify departures from provisions of the Companies Act in order to *comply* with accounting standards—a common example being where investment property companies depart from the statutory requirement to depreciate their properties so as to comply with Statement of Standard Accounting Practice 19 which requires the properties to be shown on the balance sheet at market value. In the remaining 4% of those cases, the override was used to *depart* from accounting standards, which illustrates the importance that accounting standards now play in ensuring that financial statements give a true and fair view.
>
> ***'True and fair' in the context of International Accounting Standards***
>
> Attention has also been focused on the fact that, under IAS, 'presents fairly' is construed together with the phrase *'in accordance with international financial reporting standards'*. Although the requirement for a 'true and fair view' makes no reference to accounting standards, in practice and effect, the legal requirement in the UK has, for many years, been to prepare accounts which give a true and fair view *in accordance with UK accounting standards.*
>
> This was confirmed by Mary Arden QC in her 1993 opinion, reinforcing her 1983 and 1984 joint Opinions with Leonard Hoffmann QC, when she advised that whether accounts satisfy the true and fair requirements is a question of law, but that in considering that question a Court would have regard to evidence in the form of the established practices and views of accountants and which are, to a large extent, represented in the form of 'accounting standards'.
>
> The FRC believes that, in circumstances where there is more than one framework in use (IAS and the existing UK framework), the inclusion of references to the financial reporting standards used is intended to identify the framework in accordance with which the financial statements have been prepared and is not intended to constrain the preparation or audit of those financial statements.

The validity of this last proposition is plausible, but not certain. Evans (2003, p. 321) proposes the opposite. Perhaps more significantly, Evans quotes U.S. and German sources in support of the view that the IAS 1 override has little, or no, significance. Here, we have quoted U.K. sources to the opposite effect. We remind the reader of the last two sentences of our earlier section on reality and its representation: 'The essential point is that the "underlying economics of any company", as a "reality", cannot exist independently of a conceptual scheme agreed between human actors. It necessarily follows that a representation of that "reality" which is regarded as having a reasonable correspondence to that reality by those who *do* accept the relevant conceptual scheme, may not be so accepted by those who do *not* accept that conceptual scheme.'

TOWARDS TENTATIVE CONCLUSIONS

We see little point in a detailed summary, and little opportunity for lengthy specific conclusions or recommendations. Some will regard what follows as pessimistic. We see it as simply realistic. At a general level, our key conclusions are as follows:

- The purpose of financial reporting is to give an understanding, which is not misleading, of the underlying economics of an enterprise.
- The 'underlying economics' represents an inherently subjective construct. Different attitudinal contexts will see, and will continue to see, that construct differently.
- Rules, by themselves, are inadequate. Whether or not they are *based* on principles, some sort of Type A criterion, such as true and fair, or not misleading, is essential.
- Major and fundamental differences exist between various players on the world regulatory scene.
- Much of the debate at the regulatory and policy level is at best vague and confused, more likely disingenuous, and possibly intellectually dishonest.
- Different players will interpret words, concepts and agreements in different ways, both now and in the future.
- Significant limitations for international standardization are implied by the above points. It is essential that these limitations are understood, and accepted with all their implications.
- No one player, construct or culture, can impose its will at a global level.

We have exposed and clarified many important issues in the current debate on the style and direction of financial reporting in an international context. We consider that the attitude of the SEC as illustrated in 1942 was much more sensible than that of many regulators today, and remind those regulators of the old former SEC message: 'The basic question [is] whether the financial statements performed the function of enlightenment, which is their only reason for existence'.

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Principles- Versus Rules-Based Accounting Standards: The FASB's Standard Setting Strategy

In response to criticism of rules-based accounting standards and Section 108(d) of the Sarbanes-Oxley Act of 2002, the SEC proposed principles-based (or 'objectives-oriented') standards. We identify several shortcomings with this approach and focus on two of them. First, the format (type) of a standard is dependent on the contents of what the standard regulates. Given the asset/liability approach combined with fair values, we argue that the combination of this measurement concept with principles-based standards is inconsistent because it requires significant guidance for management judgment. Second, we propose the inclusion of a true-and-fair override as a necessary requirement for any format that is more than 'principles-only' to deal with inconsistencies between principles and guidance. We discuss the benefits of this override and present evidence from the United Kingdom's experience.

Key words: Accounting standards; FASB; Principles; Rules; Rules-based.

According to a widely-held view, U.S. accounting standards are more rules-based than principles-based.[1] This observation stems in large part from the emphasis put on two aspects of the wording of the typical attestation statement: 'the financial statements *present fairly*, in all material respects, the financial position of X Company as of Date, and the results of its operations and its cash flows for the year then ended *in conformity with generally accepted accounting principles* [*GAAP*]' (emphasis added).[2] 'Present fairly', which indicates a principles-based approach, is essentially converted to a rules-based approach when it is 'defined' in SAS 69

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[1] The papers in this forum adopt varying positions regarding this view.

[2] The FASB's proposed Statement of Financial Accounting Standards, *The Hierarchy of Generally Accepted Accounting Principles* (FASB, 2005a), would more explicitly codify the rules. It says in para. A5 it expects to 'reduce the number of levels of accounting literature under the GAAP hierarchy to just two ('authoritative and non-authoritative . . . [and] integrate GAAP into a single authoritative codification'). The standards adopted by the FASB would be the first level.

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(.05 a) by reference to Rule 203 of the AICPA Code of Professional Conduct. This rule states that 'present fairly' 'implies that the application of officially established accounting principles almost always results in the fair presentation of financial position, results of operations, and cash flows'.[3] GAAP is specified by SAS 69, paragraph AU 411, as a hierarchy of conventions, rules and procedures promulgated by specified authoritative bodies, particularly the Financial Accounting Standards Board and predecessor organizations (e.g., the Accounting Principles Board).[4] Thus, if the enumerated and codified GAAP have been followed as specified, presumably the attesting CPAs have done their jobs correctly and adequately in the eyes of the Securities and Exchange Commission and (probably) the Public Company Accounting Oversight Board (PCAOB).

Largely because of the Enron Corporation failure, wherein Arthur Andersen was seen as designing or accepting client-originated financial instruments that met the technical requirements of GAAP while violating the intent,[5] the rules-based approach has come under fire.[6] As a direct result of the misleading accounting procedures revealed in the investigations of Enron's failure, the Sarbanes-Oxley Act of 2002 included a provision, Section 108(d), instructing the SEC to conduct an investigation into '[t]he Adoption by the United States Financial Reporting System of a Principles-Based Accounting System'. The SEC's Office of the Chief Accountant, Office of Economic Analysis, issued a 68-page Report (the 'Report') in July 2003 (SEC, 2003).[7] In July 2004, the FASB (2004) responded and in almost all respects agreed with the SEC Report (in part, no doubt, because the Report agreed with an earlier FASB [2002] statement and recommended that the FASB be the sole U.S. standard setter).[8] Therefore, the Report, which summarizes much of the writing on this subject (including submissions by the FASB), provides a point of departure for an analysis of the 'rules vs principles' debate. Given this degree of unanimity and the reasonable presumption that the Commission approved the Report, its analyses and recommendations should be taken very seriously.

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[3] The AICPA's Auditing Standards Board proposed amendment to SAS 69 (AICPA Auditing Standards Board, 2005) includes this language. Although the statement includes an 'almost always' qualifier, it has not been interpreted to allow for an override.

[4] If adopted, SAS 69 applied to non-governmental entities would delete the GAAP hierarchy specified, particularly the statement in paragraph .05 a that gives as the first source—'Accounting principles promulgated by a body designated by the AICPA Council to establish such principles'—and .05 b which includes: 'Pronouncements of bodies composed of expert accountants, that deliberate accounting issues in public forums for the purpose of establishing accounting principles or describing existing accounting practices that are generally accepted'. These and other sources would be replaced by the FASB, which 'is responsible for identifying the sources of accounting principles and the framework for selecting the principles used in the preparation of financial statements that are presented in conformity with generally accepted accounting principles in the United States' (AICPA Auditing Standards Board, 2005, .08).

[5] Andersen actually was charged by the Department of Justice with destroying evidence and was found guilty in a jury trial in June 2002 of 'witness tampering' because one of its lawyers had 'corruptly' persuaded Andersen employees to destroy documents in advance of an SEC investigation. In May 2005 the Supreme Court reversed that conviction, ruling 'that the jury instructions failed to convey properly the elements of a "corrup[t] persuas[ion]" conviction' (*Arthur Andersen LLP, Petitioner v. United States*, No. 04-368, 31 May 2005, Renquist, J., p. 1). The U.S. Department of Justice then chose not to pursue the case.

[6] Following a detailed description and analysis of Enron transactions audited or participated in by Andersen, the Examiner in Bankruptcy for Enron (Batson, 2004, Appendix B, p. 167) concludes: 'The evidence reviewed by the Examiner, and the reasonable inferences that may be drawn from that evidence, are sufficient for a fact-finder to conclude that Andersen was negligent in the provision of its professional services to Enron. In addition, the evidence is sufficient for a fact-finder to conclude that Andersen aided and abetted certain Enron officers in breaching their fiduciary duties to Enron.'

[7] Printed in what the web document describes as the 'smaller' text size.

We begin our analysis by reviewing the SEC's (2003) Report that suggests a principles-based (or, as it calls it, an objectives-oriented) approach and the subsequent strategy of the FASB with respect to principles-based standard setting. Two major shortcomings are discussed in subsequent sections. First, the format of standards cannot be discussed and decided on without considering the contents of what the standard should prescribe. Observing that the FASB follows the asset/liability approach and increasingly adopts fair-value measurements, we argue that the combination of this measurement concept with principles-based standards is inconsistent. A major reason is that fair values require many rules to provide sufficient guidance, they invite manipulation, and they often cannot be assured by auditors.[9] We propose to move back from an asset/liability approach with fair values to the traditional revenue/expense model, which is better able to produce trustworthy and auditable numbers.

The second shortcoming is the dismissal of a true-and-fair override that we argue is a necessary requirement for any standard setting approach. The more rules the standards include, the more an override provision is necessary to avoid allowing or even requiring accountants to follow rules by letter but not by intention. The override gives accountants more professional responsibility for financial statement content, and its disclosure gives sufficient transparency for users to understand and, perhaps, challenge its application. We present evidence on the use of a true-and-fair override from the United Kingdom's experience and discuss how International Financial Reporting Standards (IFRSs) cope with the issue.

The format of accounting standards is not exclusively a U.S. issue, although the current debate has emerged there in the aftermath of accounting scandals, but is of international interest because the FASB and IASB have agreed to converge their standards as much as possible. Recent evidence of convergence is their June 2005 joint exposure draft on business combinations (FASB 2005b; IASB 2005a), which has even the same numbering of paragraphs.[10] Thus, the U.S. debate on principles vs rules should not be viewed solely from an U.S. perspective but, rather, from an international one.

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[8] Furthermore, the AICPA Auditing Standards Board (2005, p. 5), states that the FASB's (2005a) proposed statement, *The Hierarchy of Generally Accepted Accounting Principles*, is '[i]n response to recommendations in the [SEC's Report]'.

[9] It is interesting to note that when accounting standards (or principles) were controlled by accounting practitioners who served on AICPA committees, proposals for fair- and present-value restatements of assets were not taken seriously.

[10] However, the IASB draft includes less content, so that some paragraphs are 'not used' to preserve the consecutive numbering with the FASB draft.

THE REASONS FOR RULES-BASED STANDARDS

In October 2002 the FASB issued a Proposal, *Principles-Based Approach to U.S. Standard Setting*. The Proposal's introduction (FASB, 2002, pp. 2–3) explains: 'in the Board's view, much of the detail and complexity in accounting standards has been demand-driven, resulting from (1) exceptions to the principles in the standards and (2) the amount of interpretive and implementation guidance provided by the FASB and others for applying the standards'. According to the FASB, the exceptions resulted from the Board having to make compromises with presumably powerful interest groups that prevented it from implementing its desired principles. The Proposal makes particular mention of FAS 133, *Accounting for Derivative Instruments and Hedging Activities*, the complexities of which resulted from the Board having to make numerous exceptions from the general principles promulgated in FAS 133, para. 3. The extensive guidance, it says, results from having to fulfill the objectives of comparability and verifiability. The Proposal rejects 'principles-only' standards, because these 'could lead to situations in which professional judgments, made in good faith, result in different interpretations for similar transactions and events, raising concerns about comparability' (p. 9). Comparability may be seen as especially important in an international environment, as there is the danger that local accountants and regulators arrive at differing views on the interpretation of contentious accounting issues.

In addition, the FASB (and its predecessors) have developed rules-based standards to meet the demand of major constituents, particularly management and auditors, who want a clear answer to each and every perceivable accounting issue. The litigious situation in the United States (and increasingly in other countries) means that the risk of law suits based on alleged wrong accounting is high and gives accountants a strong incentive to ask for rules they can adhere to in case of a costly law suit. As Schipper (2003) points out, rules are likely to proliferate as accountants ask for guidance that, they hope, will protect them from criticism and lawsuits.

Detailed rules and authoritative guidance also serve standard setters' and regulators' objective of reducing the opportunities of managers to use judgments to manage earnings (and of auditors to have to accept that practice). Standard setters can be and must show that they are active standard setters. Thus, they may tend to overproduce standards and to write detailed rules covering almost any conceivable situation.

THE CASE FOR PRINCIPLES-BASED STANDARDS

Despite the demand for rules-based standards, the FASB (2002, 2004) and the SEC (2003) reject them and have turned to proponents of principles-based standards, presumably because in the light of the accounting scandals they consider the costs of rules-based standards to outweigh their benefits. The SEC Report states:

> Unfortunately, experience demonstrates that rules-based standards often provide a roadmap to avoidance of the accounting objectives inherent in the standards. Internal inconsistencies, exceptions and bright-line tests reward those willing to engineer their way around the intent of the standards. This can result in financial reporting that is not representationally faithful to the underlying economic substance of transactions and events. In a rules-based system, financial reporting may well come to be seen as an act of compliance rather than an act of communication. Moreover, it can create a cycle of ever-increasing complexity, as financial engineering and implementation guidance vie to keep up with one another. (SEC, 2003, at note 13)[11]

For these reasons, and based on an example of how corporations (mis)used the 'bright lines' given in APB Opinion No. 16 that specify when a business combination could be accounted for with the pooling of interests method rather than the purchase method, the Report concludes that a rules-based system is not desirable.

Other critics of rules-based standards have pointed out that rules can become useless and, worse yet, dysfunctional when the economic environment changes or as managers create innovative transactions around them (Kershaw, 2005, pp. 596–7). Moreover, such standards need not reduce earnings management and increase the value relevance of financial reports in so far as the rules increase managers' ability to structure transactions that meet these rules while violating the intent (e.g., Nelson *et al.*, 2002) and real earnings management may overcompensate for judgmental discretion (see Ewert and Wagenhofer, 2005).

The Report therefore examines what it terms 'principles-only' standards, which it defines as 'high-level standards with little if any operational guidance' (at note 13). It then dismisses this alternative, since 'principles-only standards typically require preparers and auditors to exercise judgment in accounting for transactions and events without providing a sufficient structure to frame that judgment. The result of principles-only standards can be a significant loss of comparability among reporting entities' (at note 14).[12] The Report does not further consider whether or to what extent the financial statements of different entities can be more or less meaningfully compared even when based on common rules or principles.[13]

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[11] The Report's page numbers differ depending on the format in which the electronic version is printed. Hence, we locate quoted material by the nearest footnote.

[12] The SEC Report (2003, at note 15) gives two numbered additional concerns that could be ascribed to principles-only standards: '(2) a greater difficulty in seeking remedies against "bad" actors either through enforcement or litigation, and (3) a concern by preparers and auditors that regulatory agencies might not accept "good faith" judgments'. These are not further discussed. However, in a section entitled 'The Role of Judgment in Applying Accounting Standards', the Report appears to dismiss (3), as it states: 'it is simply impossible to fully eliminate professional judgment in the application of accounting standards' (p. 15 at note 21). Nor would we wish to, as we discuss later.

[13] See Dye and Sunder (2001, p. 266) for cogent arguments pointing out the shortcomings of uniformity (the same rule, e.g., expense research and development, yields different results when one firm's activities are successful and another's efforts are a failure) and the benefits (reporting choice reveals strategies) from allowing financial statement preparers to choose among alternatives.

Rather, it offers only two related examples to explain its rejection of principles-only standards, impairment of long-lived assets and recording depreciable assets at their historical 'time of acquisition' cost. The Report criticizes the lack of implementation guidance, which leads to a loss of comparability. However, it does not recognize that, no matter how a long-lived asset is initially recorded, comparability is lost as soon as the asset is purchased, as its value in use differs among users. Over time, both value in use and value in exchange or replacement value also change and the alterations will differ among companies; furthermore, the changes often cannot be determined objectively. Consequently, comparability would only be possible if strict rules for revaluing assets at unambiguously specified values were used. It is not 'principles-only' that is at fault here, but the inevitable and, indeed, desirable lack of comparability due to different economic environments. Further, the Report does not recognize that a company's choice of accounting measurement or presentation can convey information that is valuable to investors about the managers' operational and investment approach and decisions.

The Report proposes, rather than 'principles-only', what it calls 'objectives-oriented' standards, which are said to be optimal as between principles-only and rules-based standards, apparently because they offer a much narrower framework that would limit the scope of professional judgment but allow more flexibility than rules-based standards. 'Objectives-oriented' standards are similar to what the FASB (2004) calls principles-based standards. They appear to be those where the accounting reflects the economic substance of the accounting problem and is consistent with and derived from a coherent conceptual framework, from which there are few exceptions. These standards, the Report asserts, should:

- Be based on an improved and consistently applied conceptual framework;
- Clearly state the accounting objective of the standard;
- Provide sufficient detail and structure so that the standard can be operationalized and applied on a consistent basis ['Note 1 of the Report says: "In doing so, however, standard setters must avoid the temptation to provide too much detail (that is, avoid trying to answer virtually every possible questions within the standard itself) such that the detail obscures or overrides the objective underlying the standard." '];
- Minimize exceptions from the standard;
- Avoid use of percentage tests that allow financial engineers to achieve technical compliance with the standard while evading the intent of the standard. (SEC, 2003, p. 5 at note 1)

This is a sensible and desirable list of characteristics and admonitions. Indeed, it is a wish list to which all standard setters would subscribe. But it begs the question as to how much detail should be included in objectives-oriented standards. Indeed, the Report gives no indication of how such an 'objectives-oriented' standard should or can be derived.

The AAA Financial Accounting Standards Committee (2003) also uses the term 'concept-based' standards and attaches the following characteristics to them: an emphasis on the economic substance rather than the form of a transaction, a description of the particular transaction that is the subject of the standard, disclosure requirements, and some implementation guidance in the form of examples. The Committee says (p. 76): 'Concept-based standards have the potential to promote the financial goals of the FASB in ways that rules-based standards cannot . . . Concept-based standards reflect a more consistent application of the FASB's Conceptual Framework and enhance individuals' understanding of the framework.'[14]

We agree with the view that 'optimal' standards are somewhere in the continuum of 'principles-only' and 'rules-only'. In search of a universal, if not an optimal approach to standards, the FASB has been including more principles in their recent standards and exposure drafts (some examples are given below), while the IFRS has added significantly more guidance to their principles-based format in their recent standards (as shown from the increase from year to year in the number of pages of the printed version). In the following, we hypothesize two avenues to correct flaws in this search for improvement to U.S. standard setting: (a) recognizing that the format of standards is related to their contents and (b) a true-and-fair override in the standards.

CONTENTS AND FORMAT OF STANDARDS

An assessment of the format of standards, or their underlying philosophical bases, crucially depends on their regulatory content, that is, on the underlying accounting principles they are intended to observe. A major driver of complexity in accounting standards is the number of exceptions to a basic standard (FASB, 2002); another is the amount of judgment necessary to apply a standard, which then necessitates rules and guidance. To understand the SEC Report's objectives-oriented standards, it is important to consider its underlying accounting measurement or valuation model. We note that although the SEC has not sought to define or develop an accounting model, the close interdependence between the type of standard and its contents implies the need to outline such a model when it provides recommendations regarding the format for standards. While a standard seeks to implement a particular principle for an accounting problem, its drafters also should consider and try to avoid potential gaming by opportunistic company managers and accountants. Gaming specifically results from too much leeway given to management and accountants. In general, some principles provide more gaming opportunities than others. The more decision 'relevant' and the less 'reliable' a standard the more difficult it is to provide a standard that does not need significant guidance and rules.[15]

The Asset/Liability Accounting Model

The Report adopts the asset/liability model as the fundamental building block of accounting standards, and emphatically rejects the traditional revenue/expense model.[16] 'In the asset/liability view the standard setter, in establishing the accounting standard for a class of transactions would, first, attempt to define and specify the measurement for the assets and liabilities that arise from a class of transactions. The determination of income would then be based on changes in the assets and liabilities so defined.' In contrast, when describing the revenue/expense model, the Report states that it gives 'primacy to the direct measurement and recognition of the revenue and expenses related to the class of transactions. *Under this approach, the balance sheet becomes residual to the income statement, and contains assets, liabilities, and other accruals/deferrals needed to maintain a "balance sheet".*' The Report rejects this approach: 'We believe that the revenue/expense view is inappropriate for use in standard-setting—particularly in an objectives-oriented regime'. One reason for this conclusion is that there 'are a variety of specific revenue recognition standards . . . for narrowly defined transactions or industries'. The other reason given for rejection of the revenue/expense approach is that it is necessary to measure wealth at the beginning and end of periods 'as a conceptual anchor to determining revenues and expenses that result from the flow of wealth during the period. Historical experience suggests that without this conceptual anchor the revenue/expense approach can become ad hoc and incoherent.'[17] The revenue/expense approach is blamed for the inclusion of deferred revenues and expenses that are incorrectly described as assets and liabilities. The Report concludes: 'Not surprisingly, an examination of these standards shows that various inconsistencies exist among the revenue recognition models'.[18]

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[14] The Committee also reviews a substantial body of academic research and finds it inconclusive.

[15] Bennett *et al.* (2005) provide a comparative analysis of the standards on research and development in the U.S., New Zealand and in IFRS.

However, similar, if not greater, problems arise with the asset/liability approach under principles-based standards. The reason is that the asset/liability approach cannot be applied consistently by accountants and managers without such extensive guidance that it would degenerate into providing rules-based standards. Although the Report does not clearly specify how assets and liabilities should be measured, since the economic definition of income is emphasized, it would appear that fair values should be used.[19] Indeed, the FASB (and the IASB) give priority to fair value measurements.[20] The FASB Exposure Draft on *Fair Value Measurements* (2005c, issued 2004 and revised 2005) is part of 'the Board's initiatives to simplify and codify the accounting literature, eliminating differences that have added to the complexity in GAAP' (p. ii). A review of the FASB draft statement shows that extensive guidance is necessary to reduce the enormous room for judgment in determining fair values—and provides evidence for our conclusions.

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[16] The quotations in this paragraph are taken from the SEC (2003) between notes 72 and 78, emphasis in original.

[17] No examples of or references to such historical experience are provided.

[18] This statement is supported only by reference to FASB Project Updates, 'Revenue Recognition'. In fact, this document does not show or even mention inconsistencies.

[19] See also the Report's observation that it is likely that the FASB will issue more standards with fair-value measurements (SEC, 2003, at note 100).

[20] Evidence of the movement to fair value are the recent drafts with a full fair value approach for business combinations (FASB, 2005b, and IASB, 2005a) and the fair value option for financial instruments (FASB, 2006, and IAS 39, as revised June 2005), which is only the first part of a fair value project of the FASB (see Notice for Recipients of the FASB [2006] Exposure Draft). See also the discussion paper on measurement at initial recognition (IASB, 2005b).

Schipper (2003) additionally shows how, for example, application of a principle governing the fair value of financial instruments presents several difficulties. She lists and examines the definition of the term 'financial instruments', the value attribute (exit or settlement amount, entry value, net realizable value, value in use, deprival value), measurement of the value (e.g., bid, ask or midpoint, block discount, model or present value calculation), and the problem of how sparse trades and block trades should be handled. Exceptions to the standards can be dealt with, she says, only by means of rules, which 'add to the length and complexity of the standard, and lead to requests for explanations of the breadth of the exceptions' (p. 67). Except for assets and liabilities for which relevant and reliable market prices (on the 'relevant market') can be obtained, the values assigned must be determined from appraisals, present value calculations, or by reference presumably to similar assets.[21] It is likely that these numbers often are both costly to determine and subject to possible opportunistic manipulation by managers, if they can be calculated at all, considering the difficulty or impossibility of determining and measuring intra-firm externalities. Thus, if trustworthy numbers are useful to investors, very detailed rules for calculating them would have to be written by the standard setters. This clearly is contrary to the characteristics of the coherent conceptual framework specified by the Report, particularly its admonition against excessive detail (SEC, 2003, footnote 1).

A cogent example, discussed by Schipper, is changes that impair the value of recorded goodwill. The necessity of revaluing the assets gives rise to a series of questions that complicate application of the standards and require a significant amount of rules and guidance. Schipper (2003, pp. 64–5) asks:

> at what level in the organization should goodwill be tested for impairment, and how often? Since goodwill cannot be separately measured, how should the impairment test be carried out? If goodwill is found to be impaired, how should it be remeasured? The standard setting issue: How many of these questions should be answered in the standard and at what level of detail?

Besides the difficulties of measuring fair values, the measurement principle covers (at least currently) only a subset of balance sheet assets and liabilities. The SEC Report talks about specifying the measurement for a 'class of transactions' (2003 at note 72). This appears to be those that involve assets and liabilities that are economically similar, which, thus, defines the 'scope' covered by a standard. The Report would have the standard setter identify the assets and liabilities that are created, eliminated or changed by a transaction or event such that it is not too narrow or too broad—deemed 'optimal scope theory'. This implies a need for detailed rules that define 'narrow' and 'broad' and how recognizable classes of transactions that can be distinguished from other classes. The Report gives an example to illustrate this 'theory'. The FAS 141 definition of business combinations is described as 'near the optimum point on the [objectives-oriented] continuum': 'A business combination occurs when an entity acquires net assets that constitute a business or acquires equity interests in one or more other entities and obtains control over that entity or entities' (SEC 2003 at note 86). Thus, there must be control for there to be consolidation; hence, it is not necessary for the standard explicitly to exclude equity-method investments. We find it difficult to see how this illustration helps one understand what the Report means by 'optimal scope theory'. The Report does not address whether an objectives-oriented standard could avoid a bright-line definition of control (e.g., one share more than 50 per cent, as specified in footnote 5 to FAS 141), even though the Report keeps saying it wants to do away with bright lines. Perhaps, an objectives-oriented standard would give considerably more weight to the final phrase of footnote 5, 'although control may exist in other circumstances'. Here, a bright line would serve only as an indicator to judge the existence of control.

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[21] Some of the complexities of deriving values from models and other measurement issues are described, rather naively and uncritically, in the FASB exposure draft. For a critical assessment see Benston (2006).

A further implication of measurement for a class of transactions is that it generates the problem of adding the estimated market values of the acquired assets and liabilities with the historical book values of the acquirer's assets and liabilities. What does the sum of these numbers mean in terms of a general principle of 'representational faithfulness to economic substance'?[22] Although this concern with economic substance would seem to imply measuring assets and liabilities at their fair values and (presuming zero inflation) net income as the difference between fair values of net assets at the beginning and end of a period, adjusted for distributions and additional equity investments, the Report does not explicitly call for revaluation of *all* assets and liabilities at the end of an accounting period.

Revenue/Expense Approach

Although the asset/liability approach is consistent with the FASB's relatively recent pronouncements, it is inconsistent with its December 1984 Concept Statement No. 5 (*Recognition and Measurement in Financial Statements of Business Enterprises*), which describes well the traditional accounting model and declares (pp. 5–6):

- A statement of financial position does not purport to show the value of a business enterprise but, together with other financial statements and information, should provide information that is useful to those who desire to make their own estimates of the enterprise's value . . .
- Earnings is a measure of entity performance during a period. It measures the extent to which assets inflows (revenue and gains) associated with cash-to-cash cycles substantially completed during the period exceed asset outflows (expenses and losses) associated, directly or indirectly, with the same cycles.

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[22] Indeed, the former G4+1 (a group of standard setters comprising of representatives of the International Accounting Standards Committee, Australia, Canada, New Zealand, the U.K. and the U.S.A; now disbanded) pondered the application of a fresh-start method that would require valuation of the acquiree's and acquirer's assets and liabilities at fair value (although only for a uniting of interest transaction).

We believe financial statements should be based on that traditional revenue/expense model and not the asset/liability model, for several reasons that we discuss at length elsewhere (Benston *et al.* 2006, ch. 2). In our view, the debate about accounting models is unlikely to be solved by analytical methods and that empirical evidence, if available, is unlikely to resolve the issue.

In brief, the revenue/expense model offers several essential benefits. One is that it has developed over many years on the basis of market experience, long before accounting standards were appropriated and became the responsibility and virtual monopoly of well-funded, professionally staffed (rather than practitioner dominated) quasi-governmental bodies, particularly the FASB. In fact, historically, at times when financial-statement preparers reported assets and liabilities at estimated 'fair' values, scandals ensued as the following examples show. In the 1870s, Germany experienced many scandals involving overvaluing of assets and the distribution of booked gains; as a reaction, in 1884 the law introduced a lower-of-cost-or-market rule to the earlier common current value measurement (see Schröer, 1993) and the balance-sheet oriented asset/liability approach was (partially) replaced by the revenue/expense approach. In the United States, before accounting reporting was regulated, some corporations included the estimated values of intangibles as assets. As shown by Ely and Waymire (1999) using data from 1927, the price of the shares of corporations that reported high values for intangibles were discounted relative to corporations that did not capitalize intangibles. The SEC's early refusal to allow any reporting other than numbers based on historical cost, particularly write-ups of assets and goodwill, apparently as a result of perceived inflation of assets by companies in the 1920s is another example (Walker, 1992; Rappaport, 1972, pp. 3–27, 7–10). Enron's use of fair value accounting, based on present value and other 'mark to model' estimates rather than on actual relevant and verifiable market prices, to inflate its asset values and income derived from the revaluation of assets to fair value provides a more recent example (Benston, 2006).

The model also utilizes the great benefit of double entry bookkeeping, by tying the numbers reported essentially to the results of actual market transactions (Ijiri, 1971). Although accruals that are necessary to assign and match revenue and expense to time periods require judgment and rules, errors and misestimates are quickly self-correcting or are otherwise limited. In addition, the revenue/expense approach avoids the exogenous volatility of market values that have no bearing on the financial performance or position of a going concern, which holds and uses assets for a longer term and consequently cannot avail itself of an opportunity to sell the assets at fair value.

Another benefit offered by the revenue/expense model is that, unlike the asset/liability model, it does not depend on periodic measurements of the fair values of assets and liabilities, particularly those that must be estimated because there are no reliable and verifiable market prices on which to base the values. Such estimates necessarily increase managers' discretion to choose amounts that fulfill their own objectives, such as inflating reported earnings and hiding poor operating performance. Because these essentially subjective judgments rarely can be audited effectively, the audit as a reliable procedure will be devalued. We are concerned that the possibilities for error and opportunistic manipulation of fair values by managers under the asset/liability approach may be so great that many important numbers reported in financial statements will become so untrustworthy as to make the statements of limited value to shareholders and potential investors. Furthermore, as standard setters seek to constrain misuse of fair value estimation, they will be forced to enact more and more detailed constraints and rules, thereby rendering nugatory principles-based or objectives-oriented standards.

To sum up, the Report's proposed objectives-oriented standards that would implement the asset/liability approach, which, particularly when combined with fair values, are inconsistent with its rejection of rules-based standards as they would require extensive and detailed rules. Although, as Schipper (2003, 67–8) points out, it will be difficult to show empirically whether the benefits are greater than the costs, we believe that both past and recent experience and simple logic make it likely that the costs of the asset/liability approach are likely to exceed its benefits, both to accountants and investors. In contrast, the revenue/expense approach is based on procedures that arise from long and tested experience; it has survived and flourished for a long time and should not be lightly abandoned.

TRUE-AND-FAIR OVERRIDE

Regardless of the model adopted, the SEC Report's rejection of the true-and-fair override is an important shortcoming, considering its strong condemnation of rules-based standards and rejection of a principles-only based standard. The override would allow—indeed, require—companies and attesting auditors to not follow a standard or rule if its application would result in the financial statements not presenting a true and fair view of the company's financial position, results of operations, and cash flows. The Report says (SEC, 2003, after note 95), 'we believe that when the standard setter establishes standards under an objectives-oriented regime, the accounting should, in virtually all cases, be consistent with the standard setter's view of the nature of the economic arrangement'.[23]

Currently, there exists an override in AICPA's Rule 203, which allows members to state that financial statements that contain a departure from GAAP are in conformity with GAAP if, due to unusual circumstances, the statements otherwise would be misleading. However, it is not embodied in the accounting standards and has virtually never been used in practice (see Zeff, 1995). The FASB recently issued an exposure draft (FASB, 2005a), which if adopted would explicitly eliminate an override to codified GAAP because it believes

> that the selection of accounting principles in accordance with the GAAP hierarchy results in relevant and reliable financial information. Therefore, an enterprise cannot represent that its financial statements are presented in accordance with GAAP if its selection of accounting principles departs from the GAAP hierarchy set forth in the Statement and that departure has a material impact on its financial statements. (FASB 2005a, para. A10)

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[23] The Report makes no attempt to justify this assertion.

The SEC Report implies that objectives-oriented standards can portray economic arrangements in a way that omits nothing of relevance to investors, creditors and other users, and can specify and effectively deal with how these should be accounted for. However, the history of rules-based standards suggests that this is an 'impossible dream'. When companies and auditors seek guidance about how they are to account for a transaction that was not considered by the standard setter, new rules will be established. This then gives opportunistic managers a means of producing misleading financial statements that conform to the guidance and, hence, to GAAP. As Weil (2002) puts it, managers would continue to say to auditors, 'Show me where it says I can't'. A good example is Enron's misuse of the commonly understood definition of a 'business' to declare that its acquisition of two different assets (an airplane lease and a security) from a single seller constituted a 'business', so that it could record and use negative goodwill, pursuant to APB 16. Until EITF (Emerging Issues Task Force) 98-3, para. 6, specifically defined a 'business' as 'a self-sustaining integrated set of activities and assets conducted and managed for the purpose of providing a return to investors', Enron could claim and Andersen concurred that calling the simultaneous purchase of two very different assets was a 'business' because there was no rule to say that it wasn't.

The need for a true-and-fair override results from the fact that principles in principles-based standards are principles on a number of very different levels and standards cannot be crafted so that they can exclude contradictions among them.[24] In such a case the hierarchy of principles must be clear as to which principles are stronger than others. Indeed, we can imagine that only the following principles-only standard would not need an override provision: 'Financial statements should give a true and fair view'. Of course, such a standard would not be implementable, if only because true and fair cannot be defined in a sufficiently operational way. An override would seem necessary to allow firms to follow those standards which reflect their economic situation where such conflicts arise. It is also necessary where following a specific standard which otherwise would be binding on the business does not reflect the economics of the situation. Finally, it is required where GAAP does not allow firms to show their economic position. Therefore, a true-and-fair override is necessary in any format of standards, but it is particularly important for a rules-dominated system, such as that currently adopted by the United States. The more rules, the more an override is required to allow for special adaptation. This is because rules-based standards deal with specific settings and are defined in detail, the need for recourse to an override to reflect the underlying economic structure of the business is more likely to be needed than with principles-based standards that allow the use of a variety of methods providing that they produce results consistent with the principle(s) of the standard. Moreover, with rules-based standards, a true-and-fair-view requirement may be a better way to stop management from exploiting rules than trying to write further rules that seek to prohibit such conduct.

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[24] Nobes (2005) argues that a major problem has been inadequate application of or failure to use 'appropriate' principles by the FASB and IASB, and provides a discussion of six topics to illustrate his contention; see also Bromwich (1980).

A necessary requirement for an override is disclosure of its reasons and effects. Its use, we believe, would improve the quality of financial statements by indicating the economic situation of the business and help to return to auditors both the opportunity and responsibility to use their professional judgments as to whether the financial reports of a company they audited actually fairly represent its financial condition, operations, and cash flows.[25] They could refuse the override, if they did not believe this was the case. Were a true-and-fair override both permitted and acceptable, CEOs and CFOs would be unable to claim that they were not required to follow the intent as well as the letter of GAAP or, indeed, that they had to follow the rules specified by GAAP because neither they nor their auditors had the authority to override those rules to give a true and fair view. In a sense, the possibility for an override shifts the burden of proof of what is a true and fair view from the user or regulator to the accountant.

In a recent exposure draft, *Proposed Statement of Financial Accounting Standards 'Business Combinations'*, the FASB (2005b) adopted the IASB's 'bold print' identification of principles (versus guidance) in standards. This identification reveals that 'principles' can be relatively specific and, thus, low in the hierarchy, and even include exceptions from *the* 'principle'. For example, the exposure draft (FASB, 2005b, para. 28) reads:

> The acquirer shall measure and recognize as of the acquisition date the assets acquired and liabilities assumed as part of the business combination. Except as provided in paragraphs 42–51, the identifiable assets acquired and liabilities assumed shall be measured at fair value and recognized separately from goodwill.

Then, there follow pages of guidance. Without a true-and-fair override it is hard to believe that such 'principles' can always result in relevant and reliable financial information. According to Bush (2005) the U.S. has had difficulty allowing for a true-and-fair override because it has no clear clause, embodied in the law, that could serve as a basis for an override of GAAP. A partial alternative to a true-and-fair override is a differentiation of guidance according to its authoritativeness, although this seems to be something which FASB is turning away from (FASB, 2005a). For example, U.S. GAAP currently includes authoritative guidance that addresses many specific issues that may arise when applying a standard in practice and it includes non-authoritative literature on various levels of the GAAP hierarchy. Deviation from non-authoritative guidance is possible, although it is unclear to what extent it must be made transparent in the financial statements. IFRSs distinguish between bold-face printed 'principles', application guidance and IFRIC (International Financial Reporting Interpretations Committee) interpretations, although all of them are equally mandatory. Much guidance could be relegated to non-authoritative literature. For example, in Germany the accounting law is really based on principles and provides no guidance, and the standard setter's output has only the presumption of GAAP; additionally, a substantial commentary literature that fills in the gap of insufficient guidance has developed. In the United Kingdom, as more rules have been adopted, an override has become more necessary, if for no other reason than to operationally resolve conflicts between existing laws and some rules.

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[25] In an equilibrium model, Ewert (1999) shows that (vague) principles-based standards result in a preferable quality of financial statements relative to rules-based standards precisely because they place some risk on the part of the auditor.

U.K. Experience With a True-and-Fair Override

Some might argue that allowing for a true-and-fair override is fraught with danger because some degree of comparability will be lost when accountants can choose when to depart from standards. The result, the fear, is that there could be chaos. The experience of the United Kingdom, which has had a true-and-fair override for a long time,[26] and the IASB, whose override is much younger and more restrictive than that of the United Kingdom, should be instructive.[27]

In the United Kingdom the dominant duty of management with respect to the financial reports is that '[T]he balance sheet shall give a true and fair view of the affairs of the company as at the end of the financial year; and the profit and loss account shall give a true and fair view of the profit and loss of the company for the financial year' (Sec. 226(2) of the Companies Act 1985). Failure to comply with that requirement would give grounds for accusations of negligence, thereby subjecting accountants and auditors to charges of professional misconduct, and the necessity of rewriting accounting reports. 'True and fair' is deliberately not defined as it is perceived to be a dynamic concept having a technical meaning distinct from its natural meaning (see Hoffman and Arden, 1983).[28] In the end it is a court's responsibility to decide what is necessary to give a true and fair view, but it is the management's responsibility to provide a true and fair view and for the auditors to agree or disagree. The Act provides that giving additional information might be sufficient to remedy any defect in the giving of a true and fair view, but in special circumstances the override must be invoked with full information about the departure, the reasons for it, and its effect.[29] U.K. Financial Reporting Standard (FRS) 18, *Accounting Policies* (ASB, 2000), specifies that these remedies should be used sequentially.

U.K. accounting standards have been strongly principles-based but do, of course, have to incorporate rules to provide a structure to the standards, although some recent standards are more rules-based, especially those involving financial instruments, reflecting a wish of the U.K. Accounting Standards Board, the U.K. independent standard setter, to converge their standards with those of IASB and the FASB. An indication of the effect of the principles-based approach of U.K. GAAP is the fact that at the end of 1999 all extant U.K. accounting standards were printed on 900 pages. The increased detail of recent standards is clear. The output of the Accounting Standards Committee (the predecessor of the ASB, 1970–90) accounted for only 239 pages whereas FRS 13 on derivatives and other instruments (issued by the ASB in 1998) on its own comprised 91 pages. A more telling contrast is with the FASB's Statements of Financial Accounting Standards through No. 140 (September 2000, the last year for which FASB statements were printed) which took up 2240 pages (FASB 2003/2004). It also is useful to compare the current FASB-drafted statements of accounting standards with the bulletins issued by its predecessor AICPA Committee on Accounting Procedures (CAP) from September 1939 through January 1953, compiled in the fifty-six page *Accounting Research Bulletin* 43. In addition, although the U.K. Urgent Issues Task Force (UITF) issues interpretations, unlike those issued by the U.S. EITF, they are small in scope, generally address detailed items and do not seek to be comprehensive.

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[26] Its occurrence dates back to the U.K. Joint Stock Companies Act 1844. Chambers and Wolnizer (1991) provide evidence for its use in practice even before that time.

[27] Other countries, including Australia, New Zealand, Spain and the Netherlands, also have a true-and-fair override, based largely on the U.K. provision.

[28] Some commentators (e.g., Walton, 1993, p. 49) opine that 'no one knows what it [the true and fair view] means'. See also other articles in the *European Accounting Review*—1993 (Vol. 2, No. 1) and 1997 (Vol. 6, No. 4). Others, such as Chambers and Wolnizer (1991), dispute that view.

[29] Kershaw (2005, pp. 611–14) argues that the U.K. situation is very similar to that of the United States.

The Accounting Standards Board's conceptual framework is entitled *Statement of Principles for Financial Reporting* (ASB, 1999). One of the objectives of the Statement is 'to help preparers and auditors faced with new or emerging issues to carry out an initial analysis of the issues involved in the absence of applicable accounting standards' (para. 4). The Statement makes it clear that professional judgment should be exercised. Such judgment is meant to respect the spirit of accounting standards, rather than just follow their form. Under U.K. law, such uses of judgment are also reinforced by the requirement to give a true and fair view of the company's affairs.

Use of the override will be limited under IFRS to those countries where the use of the override is permitted by domestic law. This generated a strong statement from the U.K. Financial Reporting Council (FRC, the umbrella body for accounting and audit regulators) saying that the giving of a true and fair view 'remains a cornerstone of financial reporting and auditing in the UK and professional judgment will continue to be central to the preparation and audit of financial statements' (FRC, 2005, p. 1). The FRC also believes that the U.K. requirements and those under IFRS are substantively the same, and stresses that the non-technical use of the override is small (FRC, 2005, p. 4).

Professional and legal opinion agrees that following accounting standards is necessary to give a true and fair view (see Hoffman and Arden, 1983, and Arden, 1997, for the EU context), but this opinion has not been tested in the courts. The freedom to override is restricted by a number of constraints, including the need to receive external-auditor approval for any override, the wish of those contracting with the company to lay down the accounting methods used by the firm (at least for contracting purposes), the likelihood that the court and the regulators would generally find the Companies Act and accounting standards persuasive and would appeal to current professional practice and that of the relevant industry in considering the application of the override, and concern that the use of the override might cause adverse publicity.[30] Overcoming these restrictions could be burdensome for the company seeking to use the override. Moreover, given the flexibility provided in the United Kingdom's essentially principles-based standards for the proper exercise of professional judgment, the need for recourse to the override is substantially limited. Consequently, true-and-fair overrides have been used rarely in the past. Their use has increased recently, mainly to allow companies to use accounting procedures laid down in standards that otherwise would be inconsistent with the Companies Act. The general picture is given by Livne and McNichols (2004) for the period 1998 to 2002 and by studies in a regular commentary called Company Reporting that give figures for 1997, 2000 and 2002.[31] These studies consider not only explicit use of overrides but also accountings that 'look like' overrides. Company Reporting indicates that the frequency of overrides by listed companies was 15 per cent in 1997 (536 companies), 20 per cent in 2000 (427 companies) and 25 per cent in 2002 (337 companies). The vast majority of the overrides (73 per cent of those found by Livne and McNichols) are 'mechanical', in the sense they were necessary to allow specific U.K. accounting standards to be followed even though they conflict with the requirements of the Companies Act.[32] Thus, use of the true-and-fair override is generally the U.K. method for overcoming the problem where outdated law would otherwise restrict the development of accounting standards.[33] The need for this use of the override will be substantially reduced in the future as the Companies Act has been amended by regulation (effective for the financial year commencing on or after 1 January 2005) to remove inconsistencies between the Act and IFRS, which also removes inconsistencies between the Act and U.K. standards. Thus, the use of the override for other purposes is relatively small (well under 10 per cent of U.K. listed companies with the above data) as we would expect with a principles-based regime but does involve a significant number of companies. U.S. data are, of course, not available to test the remaining part of our hypothesis—that the need for an override increases as accounting regimes become more rule intensive.

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[30] This view has been confirmed by a legal opinion sought by the Financial Reporting Council (the U.K. accounting and auditing regulator) from the solicitors Freshfields Bruckhaus Deringer, who also make the point that in adopting international accounting standards the EU Commission must ensure that the annual accounts and the consolidated accounts give a true and fair view (see http://www.frc.org.uk/frrp/press/pub0826.html from 24 June 2005).

[31] For example, Company Reporting, May 2005, *Issue of the Month*, 'True and Fair Override' (see http://www.companyreporting.com). More details are provided in an area restricted to members only.

[32] There were two major reasons for these overrides. One is non-depreciation of investment properties, which is required to follow the relevant U.K. accounting standard (SSAP 19, *Accounting for Investment Properties*) issued by the predecessor body to the ASB. This is in contradiction to the Companies Act requirement for all fixed assets to be depreciated/amortized. The other is necessary to allow firms to take up the option offered by the standard on goodwill, FRS 10, *Goodwill and Intangible Assets*, to not amortize purchased goodwill in the face of the Company Act's depreciation/amortization requirement (although strictly the override is available only to companies).

[33] See Evans (2003) for a review of the literature that takes a legal perspective on the true-and-fair override.

The Financial Reporting Review Panel (FRRP, established 1990) plays an important role in policing the use of the true and fair view in the United Kingdom. Inspection of its findings in the eighty-one cases up to and including 2002 yields a number of impressions.[34] First, about 20–30 per cent of the companies coming before the Panel relied on the true-and-fair override in their defense. Second, the Panel seems very concerned to rely on only the requirements of the Companies Act and relevant accounting standard(s) in determining its findings. This approach may be sensible for a relatively new body now also charged with carrying out an annual survey of accounting reports. It is also fair to say that the cases for using the override are often not compelling. However, these cases were prompted by complaints to the FRRP and may not indicate the strength of the other cases. Almost universally, the Panel has not accepted arguments based on the true-and-fair override. This suggests that the Panel so far has not encouraged innovative accounting going beyond the rules of GAAP. The one case where this defense was allowed involved the rather arcane subject of negative goodwill.[35]

Thus, if we consider only the cases coming before the FRRP, the true-and-fair override does not seem to have generated a large number of innovative treatments that seek to override the Companies Act or the accounting standards. The FRRP's recent more proactive searches for defective accounting reports may bring to light more examples where compelling evidence requires allowing resort to the true-and-fair override. Further evidence of the real extent of the use of the override may be generated as firms switch from U.K. accounting standards to IFRSs.

Livne and McNichols (2004) find that U.K. firms that override a GAAP rule (some 19 per cent of their sample), the strongest type of override, report poorer economic performance than control firms that do not use an override and suggest that this is consistent with an opportunistic use of the override, as most overrides tend to increase reported performance. They also find that the capital market appears to adjust the book-to-market and price-earnings ratios for the effect of an override in some cases, but that the financial reports of override firms are not less informative than those of the control group. On the other hand, use of the true-and-fair override has allowed accounting to respond to current conditions and has not led to anarchy in accounting, as many fear. An example of this is where using the override allowed companies to anticipate later requirements of FASB and IASB not to amortize goodwill.

Other concerns expressed in the SEC Report are that a principles-based approach would result in a loss of comparability and that regulators might not accept 'good faith' professional judgments (SEC, 2003, p. 14 at note 15). In the United Kingdom these problems do not appear to have occurred in any substantial way. Few complaints have been made about the U.K. accounting regime, at least under the ASB. Although the professional press does report some incorrectly applied standards or dubious judgments, these have amounted to only about ten important problems per year among the approximately 1,200 listed companies (excluding technical issues). All this evidence suggests that the principles-based system in the United Kingdom has worked fairly well, partly because even when rules in the form of statements produced by the ASB were instituted, the true and fair view still remained the overriding principle.

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[34] See http://frc.org.uk/frrp/press.

[35] This is the Liberty International case (see http://www.frc.org.uk/frrp/press/pub0267.html from 26 February 2002), which has been followed by a few other firms. As the assets involved were deemed to have an infinite life, the usual treatment of writing negative equity off to the income statement would have meant that negative goodwill would have been retained indefinitely in the balance sheet.

International Financial Reporting Standards

International Financial Reporting Standards (IFRS) are purportedly more principles-based than is U.S. GAAP and less permissive with respect to a true-and-fair override than is U.K. GAAP. This less specified GAAP-dominated approach results in less verbose standards than with rules-based standards.[36] An example is accounting for leases, wherein under both IFRS and U.S. GAAP a distinction is made between finance (capital) leases (which give rise to an asset and a liability) and an operating lease, which is not included in the balance sheet of the lessee. IAS 17 (22 pages) defines a finance lease (all others are operating leases) as 'a lease that transfers substantially all the risk of rewards incident to ownership of an asset' (IAS 17, para. 3). A lease is a finance lease when its term is for the 'major part' of an asset's economic life or the present value of the minimum lease payments are 'substantially all' of the fair value of the leased asset. In contrast, FAS 13 (48 pages) specifies bright-line rules. Under the broader more principles-based IAS, accountants might account for the same leases differently, depending on how they interpret 'a major part' and 'substantially all'.[37] Under the more specific FAS, a manager who wants to have a lease recorded as operating rather than financing can structure it to violate some prescribed requirement. Thus, both approaches might result in differences or be abused.

The IASB (and its predecessor, the IASC) has been struggling with the true-and-fair override, as it was torn between the U.K. and the U.S. approaches. Before 1997, it did not allow for a true-and-fair override and the IASB Framework still states:

> Financial statements are frequently described as showing a true and fair view of, or as presenting fairly, the financial position, performance and changes in financial position of an entity. Although this Framework does not deal directly with such concepts, the application of the principal qualitative characteristics and of appropriate accounting standards normally results in financial statements that convey what is generally understood as a true and fair view of, or as presenting fairly such information. (Framework, para. 46)

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[36] A notable exception is FAS 5 on loss contingencies, which is extremely thin relative to IAS 37. Ironically, FAS 5 was once voted as one of the best U.S. GAAP standards (Reither, 1998).

[37] In practice, there seems to be a tendency to appeal to the bright-line guidance in U.S. GAAP in interpreting IAS 17.

In 1997, a highly restrictive true-and-fair override was introduced by an amendment of IAS 1. Presumably, it was at the behest of the European Commission (which had an observer seat in the then IASC) to avoid conceptual differences with the accounting directives, which include a true-and-fair override. In its current version, IAS 1, *Presentation of Financial Statements*, states:

> Financial statements shall present fairly the financial position, financial performance and cash flows of an entity. Fair presentation requires the faithful representation of the effects of transactions, other events and conditions in accordance with the definitions and recognition criteria for assets, liabilities, income and expenses set out in the Framework. The application of IFRSs, with additional disclosure when necessary, is presumed to result in financial statements that achieve a fair presentation. (IAS 1 [rev. 2003], para. 13)

But it also requires an entity to depart from a standard or interpretation if compliance 'would be so misleading that it would conflict with the objective of financial statements set out in the Framework' (IAS 1, para. 16). In that case it must make extensive disclosures in the notes. This is very much in line with the U.K. situation, and with the European accounting directives,[38] but caused controversy as the IASC did not want to include an override initially.

Recognizing that the override may conflict with the regulatory framework in some jurisdictions, in the 2003 revision of IAS 1, the IASB qualified the overriding principle and restricts it to cases in which the relevant national regulatory framework requires or permits a departure from a standard. Otherwise the company is required to make extensive disclosures. This appeal to country-specific jurisdiction is unprecedented in other IFRSs and is in contrast to the IASB's strategy to avoid a country differentiation in its standards.[39]

We are not aware of any studies that provide statistics on the use of the override in IFRSs, but casual observation suggests it is used only rarely, if ever.[40] This is not surprising, as in the past relatively few companies used IASB standards voluntarily and compliance was patchy and not enforced. In summary, the ability to use the override with IFRS is highly restricted. But the ability to use it where allowed nationally will allow comparisons to be made and provide some evidence as to the importance of an override for a well-functioning accounting standard setting system. New demands for the use of an override with IFRSs may be generated as the substantial majority of first-time adopters gain experience with IFRS and discover problems in conveying the economic substance of the company under in this regime.

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[38] Its introduction into the Fourth Directive reflected again the U.K.'s demands. It caused controversy in European countries, and there are countries that still have not incorporated it into national law (which presumably should be in conformity with the Directive).

[39] However, country-specific IFRS may also result if a country does not adopt full IFRSs but introduces modifications.

[40] Research by Company Reporting found only one example of an IFRS override. The European Aeronautic Defense and Space Company (EADS) in its 2001 and 2002 financial reports did not capitalize development as required by IAS 38, but now follows IAS 38 (Company Reporting, May 2005, see http://www.companyreporting.com). Although EADS justified this deviation as providing a better view of the firm, it did not formally invoke the override (nor did the auditor when it gave an exception to the audit opinion).

CONCLUSIONS AND SUGGESTIONS

The SEC (2003) Report states that the rules-based nature of U.S. GAAP has generated a mass of detailed rules and guidance and bright-line specifications in the standards encouraging financial engineering to meet the letter but not the intent of GAAP, resulting in less informative or misleading financial statements. We agree with this analysis and support the move towards principles-based standards suggested by the SEC and subsequently followed by the FASB's standard setting strategy. Due to the United States' status as lead example for international standard setting, this change in the format of U.S. GAAP has a significant impact also on other countries.

We are concerned, however, that standard setters do not seem to take into sufficient account that the format of standards and their contents are interdependent. In particular, the more judgment an accounting principle requires, the more difficult is it to cast it into a standard without plenty of guidance and, perhaps, exceptions. The FASB continues to permit and may well extend the fair measurement of assets and liabilities even though those valuations are often not based on relevant (applicable) and reliable (objectively determined) market prices. In our view the FASB will have to promulgate very detailed rules governing the permissible inputs to and applications of pricing alternatives even when ostensibly using a principles-based regime. Otherwise, on what basis could auditors challenge managers' assertions about appraisals, comparable prices and valuation-model inputs such as expected cash flows, probabilities and relevant discount rates? The result, we believe, will be a continuation and extension of the present rules-based accounting standards model, with all its attendant faults. This is an important reason for our preference for the traditional revenue/expense model, which provides more trustworthy and auditable procedures than the asset/liability approach in combination with fair value measurement.

We also advocate the inclusion of a true-and-fair override into GAAP standards, especially when these are rules-based. The more rules a standard includes the more conceivable is it that the rules contradict principles (and most likely that lower-level principles contradict higher-level principles). And thus, the more essential is an override with clear factual disclosure to sustain the main objectives of financial statements. This necessity is reinforced by noting that in a given regime rules develop over time with often inconsistent conclusions by the same or different standard setters. U.K. evidence does suggest that an override is not often needed in what is generally regarded as a principles-based regime. It is impossible to test our hypothesis of the need for such an override in a rules-based system. A true-and-fair override puts the responsibility for accounting judgments where it ultimately belongs—with managements and independent auditors. There is reason, though, for concern that some auditors would cave in to demands by opportunistic, overoptimistic or dishonest managers. These auditors might claim that, at the time that they accepted management-demanded exceptions, in their professional judgment those exceptions to GAAP that mislead investors were justified.

However, managers' use of and auditors' acceptance of (or, possibly, insistence on) a true-and-fair override would have to be disclosed and explained, which would allow users of financial statements and regulators to form their own opinion on the validity of the exceptions. Allowing companies some leeway to choose accounting, as long as the choices are accepted by their independent public accountants and are clearly disclosed, can offer investors useful insights on the way the managers view their enterprise. Indeed, U.K. experience is contrary to the assumption that auditors and regulators would give in easily. In contrast, opportunistic behaviour by U.S. corporations that have used strict adherence to GAAP rules to produce misleading financial reports has been a much worse outcome. Nevertheless, we recognize that the usefulness of a true-and-fair override relies on effective disciplinary measures against managers and auditors.[41] We would also add transparency to actions taken or not taken by bodies such as the U.S. Public Companies Accounting Oversight Board (PCAOB) to discipline rogue and incompetent auditors as well as recalcitrant firms. In the end, we agree with the FASB's (2004, p. 6) view that 'a move toward more objectives-oriented standards will require shifts in attitude, behavior, and expertise of preparers and auditors'. Unfortunately, FASB has not suggested measures to bring about such a shift.

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[41] Recent evidence by Webster and Thornton (2004) shows that the more principles-based Canadian GAAP result in a higher earnings quality measure than U.S. GAAP; it is only the stronger enforcement in the United States that reinstates earnings quality.

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Rules, Principles and Judgments in Accounting Standards

The distinction between rules-based and principles-based standards is not well defined and is subject to a variety of interpretations (SEC, 2003, p. 5). Yet there is a commonly held view that the FASB's standards are rules-based and the IASB's standards are principles-based. This article identifies the basis of this distinction. For research and development, the article compares the FASB standard with two principles-based standards. For each standard we identify and classify rules and judgments, and observe the level of justifications for the rules and assistance to support the judgments. The three standards have rules, are based on principles, and require the exercise of professional judgment; the less conservative standard requires more judgments and, unexpectedly, more rules. The results suggest that the rules-based versus principles-based distinction is not meaningful, except in relative terms. We conclude that a relatively more principles-based standards regime requires professional judgment at both the transaction level (substance over form) and at the financial statement level ('true and fair view' override). Furthermore, it is suggested that any FASB and IASB convergence will require agreement on the weightings given to the qualitative characteristics.

Key words: Accounting; Judgments: conceptual framework; Rules: principles; Standards.

The standard setting process in the U.S. is perceived to have accounting standards that have become overly rules-based. More fundamentally, West (2003, p. 66) suggests that technical accounting rules question the claim that accounting is a professional activity because they 'are suggestive of a procedural activity without an

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intellectual foundation'. In response to concerns about the rules-based accounting standards, the FASB issued a document outlining the features of a principles-based approach to standard setting (FASB, 2002).[1] The SEC released a staff study that advocates objectives-oriented standard setting that avoids scope exceptions, eschews bright-line tests and reduces excessive detail (SEC, 2003). The FASB responded to the SEC study by reporting a set of action plans that included changing the format and content of standards, setting appropriate implementation guidance and minimizing scope exceptions (FASB, 2004).

Several recent papers address issues related to rules-based versus principles-based standards. For example, Schipper (2003) discusses why U.S. standards are principles-based and why they might be viewed as rules-based. The AAA FASC (2003) analyses the characteristics and costs and benefits of principles-based versus rules-based approaches to standard setting and provides an example of how SFAS 87, *Employers' Accounting for Pensions*, would look if rewritten to stress a principles-based approach. The FASB (2002) uses SFAS 133, *Accounting for Derivative Instruments and Hedging Activities*, as an example of a rules-based standard that is over complex, with numerous exceptions. FASB (2002) also shows how SFAS 34, *Capitalization of Interest Cost*, might look like if developed under a principles-based approach. The SEC (2003) uses APB Opinion 16, *Business Combinations*, as an example of a rules-based standard and SFAS 141, *Business Combinations*, as a principles-based approach that also could be described as objectives-oriented. Nobes (2005) argues that rules are based on principles and identifies six accounting standards which he considers contain rules. For each of the six topics he argues that a rule exists because it is based on a poor principle or because it lacks a principle.

The distinction between standards that are rules-based and those that are principles-based is not well defined and is subject to a variety of interpretations (Story and Story, 1998; SEC, 2003, p. 5). Nevertheless, U.S. accounting standards are perceived to be rules-based and International Financial Reporting Standards (IFRS) are, according to the chairman of the International Accounting Standards Board, consistent with underlying principles and require professional judgment (see FASB, 2002, and Schipper, 2003). Hence, based on this perception, the purpose of this study is to examine this issue empirically by providing a comparative analysis of the content and characteristics of a rules-based standard and a principles-based standard.

We contribute to the debate by analysing a purportedly rules-based standard (SFAS 2, *Accounting for Research and Development Costs*) and two purportedly principles-based standards (IAS 9, *Research and Development Costs*, and FRS-13, *Accounting for Research and Development Activities*).[2] In addition to identifying and classifying rules and judgments contained in these standards, we compare the level of justification for the rules (including accounting principles) and the level of assistance provided in the standard (e.g., examples and guidance) to support judgments.

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[1] Another response has been to provide empirical evidence of the relative advantages and weaknesses of rules-based versus principles-based (or judgment-based) accounting standards (e.g., Cuccia *et al.*, 1995; Nelson, 2003; Psaros and Trotman, 2004; Webster and Thornton, 2004).

[2] The reason for research and development (R&D) as our choice for standard is explained in the next section.

For this study, we identify accounting principles by reference to the conventions described in various conceptual frameworks (e.g., the qualitative characteristics, element definitions and recognition and measurement criteria). While this is contestable in terms of the earlier debates on what constitutes an accounting principle (e.g., Moonitz, 1961; Storey and Storey, 1998), standard setters, being the primary beneficiaries, would be expected to apply the conceptual framework in developing standards (Foster and Johnson, 2001).

We adopt a different approach to that in AAA FASC (2003), FASB (2002) and SEC (2003). Our contribution is that we analyse standards that have been through due process and have been used in practice. We use actual principles-based standards, rather than reconstructed rules-based standards, as hypothetical examples of principles-based standards (e.g., AAA FASC, 2003; FASB, 2002; and SEC, 2003) to develop an understanding of the distinction between rules-based standards and principles-based standards. For example, the SEC (2003, p. 10) concludes that the shortcomings of rules-based standards are that they contain numerous bright-line tests, numerous exceptions, and voluminously detailed implementation guidance. However, they provide no evidence for this claim.

We conclude that the rules-based versus principles-based distinction is not meaningful, except in relative terms. Our analysis reveals that all three standards reviewed comprise rules, many of which are supported by principles. Furthermore all three standards, to a varying degree, require the exercise of professional judgment. We observe that the less conservative standard requires more rules and more judgments. We also note that IFRS acknowledge the use of professional judgment and require an assessment of the fair presentation of the financial statements. This is much wider than the U.S. practice of assessing the fair presentation in accordance with generally accepted accounting practice. Based on this limited sample, we tentatively infer the perception that a standard is principles-based may arise from having more requirements to professional judgment (e.g., accounting for the substance of a transaction). Finally, we note some potential issues that might arise in converging with or adopting IFRS.

METHODOLOGY

Choice of Accounting Jurisdictions

Consistent with observations made in Schipper (2003) and SEC (2003), we chose a U.S. standard to represent the purported rules-based approach to standard setting and an international standard to represent a principles-based approach. SFAS 2 requires all research and development expenditure to be expensed when incurred. In contrast, IFRS and other regimes (e.g., Australian, British and New Zealand) require expensing of research expenditure but allow the deferral and amortization of development expenditure if certain criteria are satisfied. Another reason for our choice to compare a U.S. standard and IFRS is because of the joint FASB and IASB convergence project, announced 18 September 2002.

We chose the New Zealand standard as another reference point on the rules-based principles-based continuum. New Zealand accounting standards have a strong relation with international standards.[3] Bradbury (1999) notes that the first accounting standard of a new series issued in 1974 carried the crest of the International Accounting Standards Committee. Thereafter the two sets of standards diverged until 1997, when future standards were to be based on standards issued by the International Accounting Standards Committee or the Australian Accounting Standards Board.[4] On 19 December 2002 it was announced that New Zealand entities would apply International Financial Reporting Standards for periods commencing 1 January 2007, with the option for early adoption from 1 January 2005.

Choice of Accounting Issue

Our selection of the research and development issue was the result of the following criteria. First, an initial list of potential standards was extracted from Mason and Gibbins (1991). They chose eleven U.S. standards from approximately thirty APB Opinions and FASB Statements.[5] Second, for comparability we required a standard that focuses on a narrow economic phenomenon on which both the FASB and the IASB had issued a relatively comparable standard.[6] Third, we chose a standard that contained a significant measurement and recognition issue, rather than being primarily a disclosure issue (e.g., the reporting of cash flow statements). Fourth, it was desirable that the standard was independent of, and therefore preceded, the current rules-based principles-based standards debate.

We note that the standards chosen are from different periods. SFAS 2 was issued in 1974, IAS 9 in 1993 and FRS-13 in 1995. We use the 'Revised 1993' version of IAS 9, which was superseded, in 1999, by IAS 38, *Intangible Assets*. Comparing standards that are issued at different dates allows the possibility of differences due to changes in conceptual frameworks, changes in technology (especially in measurement reliability) and the accumulation of empirical evidence that can be brought to bear on the issue. We do not view this as a weakness, as our purpose is not to create a 'horserace' for the 'best standard'. Rather, it is to undertake a comparative analysis of a purported rules-based standard with a purported principles-based standard.

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[3] Our initial expectation was that the New Zealand standard FRS-13 would be similar to IAS 9. However, we found important differences in the choice of 'principles' and in disclosure requirements. These differences highlight the impact that due process has on the content of a standard and suggest implications for convergence and adoption of IFRS.

[4] The harmonization between Australian and New Zealand accounting standards began at an earlier date. In June 1994, the Accounting Standards Review Board (New Zealand) and the Australian Accounting Standards Board issued identical policy statements supporting harmonization between the two countries.

[5] The criteria used by Mason and Gibbins (1991) were that these best represented standards that (a) dealt with a broad issue comprehensively, (b) were not limited to a specific industry and (c) were not wholly or substantially superseded.

[6] This criterion eliminated many standards where there was not a one-to-one correspondence between national and international standards.

Procedures

One of the first difficulties encountered in analysing comparative accounting standards is that they are structured differently in different jurisdictions. U.S. standards comprise an introduction and standards with appendixes for background information and basis for conclusions. International standards (IAS) comprise an introduction (objectives and scope), definitions, standards (black letter) and commentary (grey letter). The New Zealand standard (FRS) has similar construction to an IAS and has an appendix containing a comparison of the standard with international and Australian Accounting Standards. We omitted the background section in SFAS and the comparative appendix in FRS-13 from our analysis, as these sections have no equivalent sections in the other standards. We also ignored transitional provisions in each standard.

We analysed each accounting standard to identify the number and type of rules and judgments, together with the justification for those rules (e.g., reference to accounting principles) and the assistance provided in the standard for any judgments that are required. Similar to Mason and Gibbins (1991), our unit of analysis is a 'phrase'. That is, we define a phrase as one rule, one principle, one judgment or one item of assistance to support the judgment. In many cases a phrase is a paragraph. However, in some cases we grouped related paragraphs into a single phrase and subdivided other paragraphs into several phrases. For example, each sub-paragraph in SFAS 2, 11 (a) to (e) was recorded as a separate phrase. SFAS 2 paragraphs 30 and 31 were considered as one phrase and coded 'other justification—using exposure draft responses as justification'. To provide a common framework across all standards we allocated each 'phrase' to one of the following sections: introduction and scope, recognition, measurement (including both initial and subsequent measurement) and disclosure. The Appendix provides an example of our coding.

We did not undertake word counts. It was not our purpose to count how many times a word (e.g., comparability) was used but rather the number of times the principle was invoked in each section. Similarly, required disclosures were only counted as one 'disclosure-rule' even if there were more than one reference in the standard (e.g., paras 27 and 30(e)(iv) in IAS 9).

To mitigate concern that our phrase coding was not always clear-cut, two authors undertook the assessment independently and then negotiated an agreed outcome. The third author then reviewed this outcome.

COMPARATIVE ANALYSIS

Rules and Justification

Table 1 presents a comparative analysis of the number of rules and justification for those rules provided in each standard. Panel A of Table 1 summarizes the number of rules contained in each section of the standard, while the appeals to

Table 1

COMPARATIVE ANALYSIS OF THE NUMBER OF RULES AND JUSTIFICATIONS

	SFAS 2	IAS 9	FRS-13
Panel A: Number of rules in each section of the standard			
Introduction and scope	2	2	2
Recognition	1	3	2
Measurement	7	7	8
Disclosure	1	8	12
	11	20	24
Panel B: Number of references to principles in each section of the standard			
Introduction and scope	1	1	1
Recognition	6	1	–
Measurement	2	3	4
Disclosure	1	–	–
	10	5	5
Panel C: Nature of the principles referenced			
Asset recognition	–	1	1
Asset recognition—probability/uncertainty of future economic benefits	1	2	1
Asset recognition—reliability of measurement	–	–	1
Comparability	4	–	1
Confidentiality	1	–	–
Exchangeability[a]	1	–	–
Matching[a]	1	–	–
Prudence	–	1	–
Separability	1	–	–
Substance (risks and benefits)	–	1	1
Usefulness	1	–	–
Panel D: Number of 'other' justifications in each section of the standard			
Recognition	2	–	–
Measurement	3	–	–
	5	–	–
Panel E: Analysis of 'other' justifications			
Another accounting standard	1	–	–
Exposure draft submissions	2	–	–
Present accounting practice	2	–	–

[a] Reference to exchangeability and matching relates to the non-application of these accounting principles, whereas the other principles in Panel C denote an appeal to these principles.

accounting principles and 'other justification' are reported in Panels B and D. Panels C and E provide further detail on the accounting principles employed and the nature of the other justification.

The most striking observation from Table 1, Panel A, is that the purported rules-based standard (SFAS 2) has the least number of rules (11), relative to purported principles-based standards IAS 9 (20) and FRS-13 (24). Furthermore, Panel B shows that SFAS 2 is supported by more references to accounting principles (10) than IAS 9 (5) and FRS-13 (5).

The reason there are fewer rules in SFAS 2 is that it adopts a more conservative position (i.e., it expenses both research and development expenditure), whereas both IAS 9 and FRS-13 require expensing of research expenditure but capitalization and amortization of development expenditure. Hence, IAS 9 and FRS-13 require recognition rules and more disclosure rules. Having permitted only one method of accounting for research and development, SFAS 2 requires a lower level of disclosure (SFAS 2, para. 62). IAS 9 has fewer disclosure rules than FRS-13 because IAS 9 'encourages' two items of disclosure that are required by FRS-13 (i.e., a description of research activities and circumstances or events that led to impairment; IAS 9.31).[7] This difference may be more to do with scope of application of the accounting standard than a difference in approach. IFRS apply to financial statements, whereas New Zealand FRS apply to the annual report (which includes the financial statements and non-financial statement information).

One of the major differences in approach between SFAS 2 and IAS 9 relates to measuring the cost of research and development. SFAS 2 contains a list of elements of cost that 'shall be identified with research and development activities' (SFAS 2, para. 11(a) to (e)). We coded this list as seven rules (including three judgments). IAS 9.12 contains a similar list that is preceded by the following definition: 'Research and development costs should comprise all costs that are directly attributable to research and development activities or that can be allocated on a reasonable basis to such activities' (IAS 9.11).

In IAS 9 (and FRS-13) the definition takes precedence. The list provides examples and guidance of what to 'include' in research and development costs 'when applicable'. This admits the possibility that there might be items not on the list that are research and development and that items on the list might not be applicable in a particular circumstance. Even though the practical effect of the standards may be the same, the list in IAS 9 acts as a series of guidelines and examples rather than a set of rules.

Analysis of Principles

Because standard setters would be expected to apply the conceptual framework in developing standards, we identify accounting principles by reference to the conventions described in various conceptual frameworks (e.g., the qualitative characteristics, element definitions, and recognition and measurement criteria).

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[7] The 'encouraged' disclosures in IAS 9 are classified as judgments, whereas the same items are required disclosures in FRS-13 and are therefore rules.

We note that each standard has at least one specific reference to the relevant conceptual framework.

Table 1, Panel B, indicates that all three standards are grounded in principles. As SFAS 2 is based on the non-recognition of research and development as an asset, the section dealing with recognition contains the most references to accounting principles. Whereas, in IAS 9 and FRS-13 the measurement section contains the most references to accounting principles. In terms of the principles referenced (Panel C), SFAS 2 is heavily weighted on the principle of comparability. Wolk *et al.* (1989, p. 236) distinguish between finite and rigid uniformity. Finite uniformity attempts to equate prescribed accounting methods with the relevant circumstances in generally similar situations. Rigid uniformity is prescribing one method for generally similar transactions, even though relevant circumstances may be present. Wolk *et al.* (1989) describe SFAS 2 as an example of rigid uniformity because research and development costs must be expensed even though future benefits may be present.

Panel D reports the other justification in the standard. There is a bias in this panel because SFAS 2 contains a Basis for Conclusions, which does not exist in IAS 9 and FRS-13. We include the SFAS 2 Basis for Conclusions in our analysis because it contains references and justification for the accounting rules employed. This is similar to 'grey letter' commentary paragraphs in IAS and FRS. However, the SFAS 2 Basis for Conclusions also contains non-principle-based justification (e.g., appeal to other standards, current practice and ED submissions). The SFAS 2 Basis for Conclusions also refers to accounting principles that have been discussed and not applied (i.e., matching and exchangeability). Whereas IAS 9 and FRS-13 only discuss the principles applied.

The New Zealand *Statement of Concepts* (SC) is different from the International Accounting Standards Board (IASB) *Framework for the Preparation and Presentation of Financial Statements* in that both 'prudence' (SC 6.9) and 'matching' (SC 7.25) are described as unacceptable accounting principles. It would therefore be redundant to include a discussion of these principles in FRS-13. This suggests that even small differences in conceptual frameworks can alter the content of standards and possibly the perceptions of whether the standard appears rules-based or not.

Judgments and Supporting Assistance

Table 2 presents a comparative analysis of the number of judgments required in each standard and the items of supporting assistance.[8] Panel A of Table 2 provides the number of judgments required in each section of the standard and Panel B analyses the type of judgment required. Panel C analyses the type of supporting assistance for judgments contained in the standard.

Table 2 reveals that the purported rules-based standard (SFAS 2) requires fewer judgments than the purported principles-based standards (IAS 9 and

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[8] This is similar, but not identical, to the classification of professional judgments in Mason and Gibbins (1991). The main difference is that there is no word count on 'judgment' (as we are interested in the number of judgments not the number of times the word is used). Nor do we analyse probabilistic words (e.g., 'significant', 'probable', 'major'). However, these terms assisted us in identifying judgments.

TABLE 2

COMPARATIVE ANALYSIS OF JUDGMENTS AND SUPPORTING ASSISTANCE

	SFAS 2	IAS 9	FRS-13
Panel A: Number of judgments in each section of the standards			
Scope	–	1	1
Recognition	–	7	7
Measurement	3	5	7
Disclosure	–	2	–
	3	15	15
Panel B: Analysis of type of judgments required			
Allocation	1	2	2
Demonstrate	–	3	3
Disclosure	–	2	–
Forecast	–	3	4
Identify	2	3	4
Intention	–	1	1
Reliably measure	–	1	1
Panel C: Analysis of supporting assistance for judgments			
Acknowledgment of judgment	–	3	3
Definitions	2	2	2
Examples			
Scope	–	1	1
Recognition	2	3	3
Measurement	–	5	5
Guidance	–	5	5

FRS-13). The type of judgments required is illustrated in the following examples. In order to recognize development costs as an asset the entity is required to 'identify' the product or process clearly and 'reliably measure' the costs attributable (i.e., an 'allocation') to the product or process (IAS 9.17(a)). Other judgments require 'demonstrating' the technical feasibility of the product or process (IAS 9.17(b)) and having the 'intention' to produce, market or use product or process (IAS 9.17(c)). Impairment requirements of capitalized development expenditure require a 'forecast' of future economic benefits and further development costs (IAS 9.17). As noted earlier, IAS 9 has two additional encouraged disclosures that we have classified as judgments in IAS 9 but rules in FRS-13.

IAS 9 and FRS-13 have more phrases that provide assistance for making the required level of judgments. These include the 'acknowledgement' that judgment is required and the use of 'definitions', 'examples' and 'guidance'. For example, IAS 9.23 'acknowledges' the difficulty created by technological and economic obsolescence for estimating further costs and future revenues beyond a short period. The same paragraph creates 'guidance' by stating that development costs are normally amortized over a period not exceeding five years. In addition to this guidance, FRS-13 (5.12) includes a bright-line rule that limits the amortization period to a maximum of twenty years.

DISCUSSION

In the previous section we provided the numerical results of our analysis. In this section our interpretation of these results is offered in order to stimulate further debate. Alternatively, given the small sample size from which they are based, the conclusions can be regarded as hypotheses to be discussed and empirically tested by future research.

Rules and Principles

Our analysis shows that all three standards contain rules. Furthermore, all three standards are based on principles. Thus the terms 'rules-based' and 'principles-based' are not meaningful descriptions of these accounting standards.

The AAA FASC (2003) considers that the standard setting process and its products may be viewed as a continuum. At one end are rigid rules and at the other economics-based concepts that require the application of judgment. We consider a pure principles-based standard would not exist (preparers could simply rely on the conceptual framework). Thus, the fact that a standard exists at all means that some rules are needed to either clarify the conceptual framework or to stop potential accounting abuse. Unless the rules are *ad hoc* they will be based on principles. However, the standard will differ (a) because of the weighting given by standard setters to qualitative characteristics in the conceptual framework, and (b) because of the number and nature of professional judgments required.

For research and development accounting, our analysis shows that the more conservative standard (i.e., the no recognition rule in SFAS 2) contained fewer rules.[9] The less conservative standards (i.e., IAS 9 and FRS-13) contained more rules and more professional judgments (and therefore supporting phrases). The conservatism of a standard is the result of the weighting given to specific qualitative characteristics. While the FASB and IASB have similar (but not identical) conceptual frameworks, neither provides a guide for choosing between qualitative characteristics. Yet it is the weighting given to these criteria that can give rise to different standards.

We do not develop taxonomy of the rules contained in the standards but we observe that there are various levels and types of rules. There are 'hard rules' that determine in advance what conduct is permissible (e.g., expense all research and development expenditure when incurred [SFAS 2, para. 12]) and 'soft rules' that require judgment (e.g., the costs of materials that have an alternative future use shall be capitalized as tangible assets when acquired or constructed [SFAS 2, para. 11(a)]).[10] Bright-line rules appear at the operational or implementation level of the standards. There are 'hard' bright-line rules (e.g., specifying the maximum amortization period of twenty years [FRS-13, 5.12]) and 'soft' bright lines that provide guidance (e.g., development costs are normally amortized over a period not exceeding five years [IAS 9.23]). Given that some bright-line rules can assist judgment, we disagree with the SEC (2003) and FASB (2004) that principles-based standards should be devoid of bright lines. There are hard disclosure rules (e.g., the entity is required to describe its research and development activities in its financial report [FRS-13, 5.20]), and soft disclosure requirements (e.g., an entity is encouraged to include a description of its research and development activities [IAS 9.31]).

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[9] By conservatism, we mean the implicit value of the asset is assumed to be zero and the associated cost of the asset acquisition is expensed. It might be argued that conservatism is not a necessary condition. That is, the standard could contain a single, non-conservative rule that required capitalization. However, rules requiring cost capitalization or value estimation would still need further rules for remeasurement (i.e., impairment and amortization) and continuing disclosures.

Drafting

Why is it that U.S. standards are commonly perceived to be rules-based? Differences in drafting may give this impression. For example, SFAS 2 provides a set of rules on the elements of cost, whereas IAS 9 (and FRS-13) provides a general definition followed by examples and guidance. SFAS 2 will appear more rules-based even if there is no difference in the application by practitioners of this part of the standard.

Nelson (2003) notes that the IAS regime is a relatively younger standard setting regime than the FASB and therefore they have had less time to accrete rules. Our analysis provides some support for this hypothesis.[11] We note (Table 1, Panel E) that SFAS 2 makes a reference to APB Opinion No 16 in its Basis for Conclusions. However, this may not be a fair test as SFAS 2 is a relatively older standard and is not likely to capture the potential cross-referencing that would be within a more recent standard.

Uniformity, Comparability and Economic Substance

From Table 1, Panel C, it is the weighting given to 'comparability' relative to 'substance' that has the major impact on the conservatism of the standard and hence the perception that it is rules-based. The rigid uniformity in SFAS 2 arises from a substantial weighting on comparability, in contrast with IAS 9 that is based on substance over form.[12] However, the issue of uniformity goes beyond SFAS 2 (for an historical perspective see Merino and Coe, 1978). For example, Schipper (2003) suggests it is the desire for comparability and consistency that is the reason for accounting standards. Thus, relevance and reliability assist in the standard setting process once it is agreed that comparability is desirable. On the other hand, the AAA FASC (2003) states that economic substance not the form of any given transaction should guide standard setting. It specifies that a concepts-based standard should focus on the primary characteristics of relevance and reliability and view uniformity as secondary.

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[10] Kaplow (1992) uses this distinction in the context of whether legal commands should be promulgated as rules or standards. He uses the term 'standards' for what we have described as 'soft rules'. Under his terminology a standard leaves the adjudicator to decide on factual issues and what conduct is permissible.

[11] Although we note that both the IASC and FASB were formed in 1973.

[12] The conceptual base for SFAS 2 is APB 4. Ironically, the term 'substance over form' is mentioned prominently in APB Statement 4 (1970, paras 25 and 127) as a 'basic feature' of financial accounting. However, the phrase is only used in passing in SFAC 2 (1980, para. 160).

Professional Judgment and the True and Fair View Override

Our analysis indicates that IAS 9 and FRS-13 contain more acknowledgement of and support for professional judgments than SFAS 2. In particular, IFRS and FRS rely heavily on principles that require an overlay of professional judgment, such as determining 'substance of the arrangement'.[13] This is equivalent to the economic-based approach discussed by the AAA FASC (2003). This 'professional judgment overlay' occurs at two levels. At the transaction or event level it results in accounting for the economic substance of the transaction not the form (AAA FASC, 2003). In some jurisdictions (i.e., Australia, New Zealand and the U.K.) and in the IASB framework, the overlay of professional judgment also applies at the financial statement level in the form of a 'true and fair view' override. In the U.S. the term used is 'fairly present in conformity with GAAP'. However, Mason and Gibbins (1991) note that the explanation of this phrase in the American Institute of Certified Public Accountants' SAS 5 is not well articulated in accounting standards and contributes to a dependence on GAAP. In contrast, the true and fair view override has been a long standing cornerstone of British-based corporation law regimes (see Chambers and Wolnizer, 1991).

We note that the context in which the standards apply also reflects differences in the acknowledgement of the use of professional judgment. For example, New Zealand has a general introduction, the 'Explanatory Foreword', which applies to all standards. The 'Explanatory Foreword' states that the purpose of the financial report is to fairly present, or to provide a true and fair view of, the entity's performance and position. While it acknowledges the importance of generally accepted accounting practice (GAAP) and approved accounting standards, it admits the possibility that following GAAP may not lead to a fair presentation (para. 5.1). Furthermore, it suggests the choice of an appropriate accounting policy is 'a matter of professional judgment' (para. 4.6).[14]

Acknowledgment of a meta-level professional judgment requirement is a major cornerstone in the application of principles-based accounting rules. Mason and Gibbins (1991) consider that the absence of a general reference to professional judgment in applying FASB and APB standards may contribute to pressure for more detailed standards.

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[13] The term 'substance over form' can be traced to, at least, the late 1920s (Clarke and Dean, 1992).

[14] Other jurisdictions (e.g., Canada and the U.K.) also have a general introduction. IAS 1 also contains the concept that 'fair presentation' is more than compliance with a set of standards.

The SEC (2003, p. 30) dismisses the 'true and fair view override' as a necessary component of principles-based standards because under an objectives-oriented regime the accounting should, in virtually all cases, be consistent with the standard setter's view of the nature of the economic arrangement.[15] This argument ignores the application of the true and fair view override to the financial statements as a whole, not to specific standards. This means that the true and fair view override can be invoked even when there are no standards that cover the particular transaction being considered. Furthermore, the move away from a checklist mentality will require more than objectives-oriented standards. It requires a behavioural change. The true and fair view override is the cornerstone of professional judgment.

Beyond Accounting Standards

The standard setting process, even with identical conceptual frameworks, may not achieve identical standards or even convergence. First, the weighting of framework criteria is not a simple task (Joyce *et al.*, 1982). Second, standard setting is a political process (e.g., Hope and Gray, 1982) and there are outside factors that will influence the weighting put on conceptual arguments. For example, the prevalence of lawsuits in some jurisdictions may force the adoption of conservative accounting practices (Bierman and Dukes, 1975). Environments, such as the US, with high expected litigation may also give rise to the demand (and supply) of interpretations to accounting standards (Pacini *et al.*, 2000; Nelson *et al.*, 2002). On the other hand, a principles-based environment needs to be supported by education that emphasizes the development of the competency to make sound professional judgments.

CONCLUSION

There is a commonly held view that the FASB's standards are rules-based and the IASB's standards are principles-based. This article sought to identify the basis of this distinction by analysing actual standards that have been through due process, compared to prior research which has mainly focused on reconstructed or hypothetical examples of principles-based standards.

Our comparison of research and development standards across three different jurisdictions leads us to conclude there are two major issues that standard setters need to consider in moving towards more principles-based standards. The first is to reduce the weighting given to comparability and consistency, relative to other qualitative characteristics in the conceptual framework. The second is to increase the allowance of professional judgment in standards at the transaction level (i.e., to account for the economic substance of the transaction) and at the financial statement level (i.e., to apply the true and fair view override).

These conclusions have implications for due process and, in particular, for the FASB–IASB convergence project and the adoption of IFRS by other jurisdictions

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[15] For a more detailed criticism of the SEC Report with regard to the true and fair view override see Benston *et al.* (2005).

(e.g., Europe and Australia). Our analysis has shown that the choice of principles within the standard, together with the explanation and justification of those choices, will depend on how the conceptual framework is written. For example, the weighting given to comparability, relative to relevance and reliability, needs to be explicit. This suggests that a single conceptual framework is needed prior to any convergence project.

Our conclusions are based on the comparative content of research and development standards across three jurisdictions. Analysing other accounting standards may yield further insights.

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APPENDIX A

DESCRIPTION OF CODING

Panel A: Extract of IAS 9 paragraphs 4 and 5

4. An enterprise may carry out research and development activities under contract for another enterprise. When the substance of the arrangement is such that the risks and benefits associated with the research and development activities are, or will be, transferred to the other enterprise, the enterprise conducting the research and development activities accounts for the costs in accordance with IAS 2, Inventories, or IAS 11, Construction Contracts. The recipient of the risks and benefits accounts for its costs in accordance with this standard.

5. When the substance of the arrangement with the other enterprise is such that the risks and benefits associated with the research and development activities are not, or will not be, transferred to others, the enterprise conducting the research and development activities accounts for the costs in accordance with this standard. Factors which indicate that the risks and benefits of research and development activities are not transferred to others include: the enterprise conducting the research and development activities is contractually obliged to repay any of the funds provided by the other enterprise, regardless of the outcome of the research and development activities; and even though the contract does not require the enterprise conducting the research and development activities to repay any of the funds provided by the other enterprise or surrounding conditions indicate that repayment is probable.

Panel B: Extract of coding for IAS 9 paragraphs 4 and 5

	A Paragraph	B Black/grey	C Section	D Type	E Description	F Judgment	G Type
1	4	G	Scope	Rule 20	Does not apply to subcontract, use IAS-2 or -11	1	Identification
2	4&5	G	Scope	Principle	Risk and benefits, for judgment in rule 20	0	
3	5	G	Scope	Example	Examples (2) for rule 20	0	

Panel C: Discussion

Paragraphs 4 and 5 are combined and partitioned into three 'phrases'. Column B reports whether the phrase is black letter or grey letter. For SFAS 2 column B was coded either 'standards' or 'basis for conclusion'. Column C records one of four sections used of the accounting standard: introduction and scope, recognition, measurement, or disclosure. Column D records our judgment on the type of phrase and E a brief description. Column F records whether a judgment is involved and column G the type of judgment.

Row 1 records the rule (a sequential reference number) that the scope of the standard does not apply to research and development activities under contract for another enterprise. This rule requires judgment in identifying whether this situation exists. In row 2 the underlying principle, of whether the risks and benefits associated with the research and development are transferred, is recorded. Row 3 records the examples provided in paragraph 5 to support the judgment in rule 20.

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Perceptions of the True and Fair View Concept: An Empirical Investigation

If major groups of financial reporting participants differ in their perceptions of standards for financial reporting quality, such as 'true and fair view', 'present fairly' and 'fair presentation', a financial reporting expectation gap may occur. This article reports the results of a survey designed to explore this potential gap by determining New Zealand financial directors', auditors' and shareholders' perceptions of terms associated with financial reporting quality.

The results show that a clear majority of all three groups share similar perceptions of the 'true and fair view'; but perceive 'true and fair view' to be quite different from 'fairly presents' and 'fair presentation', terms the New Zealand Institute of Chartered Accountants' (2005) describes as equivalent to 'true and fair view'. Thus there appears to be a perception gap between the respondents surveyed and the Institute. The findings also support a *literal* rather than a *technical* interpretation of 'true and fair view'; that respondents do *not* perceive 'true and fair view' as compliance with GAAP; and that 'true' ('truth' in accounting), the word separating 'true and fair view' from terms that include only 'fair', may be perceived as a key factor required for financial reporting quality.

Key words: Expectations gap; Fairly reflects; Fair presentation; Financial reporting; GAAP, perceptions; True and fair view.

INTRODUCTION

Background: 'True and Fair View' in Context

The 'true and fair view' concept is one of two competing but not mutually exclusive legal or professional standards for financial reporting quality that have been subject to debate on their meaning, use and importance. The other is 'present fairly in accordance with generally accepted accounting principles'.[1] While the

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[1] The terms 'practices' and 'principles', although they have different literal meanings, have both been used as part of the term 'generally accepted accounting principles' (GAAP). To avoid confusion the word 'principles' will be used. For a full discussion of the history of the term and its relationship to present 'fairly' see McEnroe and Martens (1998) and Zeff (2005).

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former is closely identified with judgment and is used in the European Union (Alexander, 1993, 1996, 1999; Nobes, 1993, 2000; Ordelheide, 1993, 1996; Alexander and Archer, 2000, 2003; Aisbitt and Nobes, 2001), Singapore, Australia, and New Zealand, the latter is the standard for United States financial reporting and tends to be more rule based (Hopwood *et al.*, 1990; Dunk and Kilgore, 2000; AAA, 2003; Schipper, 2003; Nelson, 2003; Nobes, 2005).[2]

The 'true and fair view' legal requirement either overrides other financial reporting requirements (EU[3] and Singapore) or is additional (Australia and New Zealand). Australia and New Zealand have similar colonial roots and tended to follow the U.K. example, especially in early legislation (Zeff, 1979; Hopwood, 1989; Parker, 1989; Parker and Nobes, 1994). However, both countries appear to be moving away from 'true and fair' as a literal concept to a more technical meaning that also requires compliance with a set of rules (Ryan, 1967; Porter, 1995; Dean and Clarke, 2005). Until 1993, New Zealand law (Companies Act 1955) included a schedule of rules for auditing and accounting, together with the overriding requirement for a 'true and fair view'. However, the Companies Act 1993, in conjunction with the Financial Reporting Act 1993, requires financial statements that comply with generally accepted accounting principles (GAAP) with an *additional* requirement of 'true and fair view'. Prior to the passing of the 1993 Acts, it was suggested that companies could use the legislative power of 'true and fair view' to avoid complying with GAAP. It is claimed that the 1993 legislation effectively removed this option for companies that are reporting entities. Thus the 'true and fair view' rule is no longer overriding, but co-exists with GAAP in that, while complying with GAAP is a legal requirement, directors still have the obligation to provide additional information to ensure that the financial reports represent substance as well as form (Nobes, 1993, Ordelheide, 1993, 1996; Porter, 1995; Mathews and Perera, 1996; Alexander, 2001, 1993, 1999; Alexander and Archer, 2003). Following a diverging path from U.K. influences, the New Zealand Institute of Chartered Accountants (NZICA, formally ICANZ) also uses the terms 'fairly reflect' and 'fair presentation' and states that the terms are equivalent (ICANZ, 2005). This may possibly signal a move away from 'true and fair view' towards the U.S.A. requirement for 'fair presentation'.

The mainly prescriptive literature suggests that countries that require compliance with 'true and fair view' tend to address and interpret the concept according to country-specific historical, social, cultural, legal, political and economic roots and environments. This has been confirmed by earlier empirical research (Parker,

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[2] Schipper (2003) and Nelson (2003) both agree that U.S. standards are principle-based, in that they are based on the conceptual framework, but the rules have been added to give guidance and allow exceptions. Nobes (1993) argues that rules arise because the standards (U.S. and IASB) either depart from, or have too many compromises/exceptions from, the conceptual framework.

[3] Due to country specific differences, the true and fair view is not overriding in all EU countries, or in other countries that adopt IAS/IFRS. As with other aspects of the concept, its translation, interpretation and use differs for country specific reasons, including language, economic, financial, cultural, and legal system differences (Nobes, 1993; Dunk and Kilgore, 2000; Aisbitt and Nobes, 2001; Evans, 2003, 2004).

1989; Nobes and Parker, 1991; Parker and Nobes, 1991; Higson and Blake, 1993). Thus the concept has been described as a formula for international disharmony (Higson and Blake, 1993) and as 'an exercise in deharmonization' (Parker, 1994, p. 112). Yet the 'disharmony' may not be confined to different national cultures, but may include within-country groups.

If terms such as 'true and fair view' and 'present fairly' have different meanings for different participants in financial accounting, they may contribute to an expectations gap. This gap is defined here as the difference between the perceptions and expectations users have of general purpose financial statements' quality and meaning, and the quality and meaning of general purpose financial statements the accounting profession prepares (and audits). Allen (1991) describes this succinctly as the gap between what financial statements mean and what many non-accountants think they mean. Although the 'audit expectation gap' has been extensively researched,[4] the financial reporting gap has the potential to be more extensive and more misleading to users. The audit gap arises from differing interpretations of an auditor's role, whereas the financial reporting gap may exist because of a persistent lack of 'truth' in GAAP itself (McNeal, 1939; Chambers, 1973a), or from a gap in perceptions of standards for financial reporting quality held by financial statement users, preparers and auditors.

This study augments the empirical research on the 'true and fair view' concept by repeating and extending, in the New Zealand context, previous international empirical research into financial directors', auditors' and shareholders' perceptions.[5] The research instruments are adapted for New Zealand regulatory conditions and include additional questions pertaining to the perception of meaning of the concepts/phrases 'true and fair view', 'fairly reflect' and 'fair reflection'.

Adapting previous empirical research in the New Zealand context enables comparisons of the perceptions of the 'true and fair view' concept held by financial reporting participants in English-speaking countries with a common colonial background. Surveying auditors', financial directors' and shareholders' perceptions simultaneously also enables direct comparisons between New Zealand financial reporting participants' perceptions of the meaning and utility of 'true and fair view' at a set point in time. Perceptions may change at differing rates between and within groups over time. Capturing the perceptions of preparers, auditors and users at the one time may thus achieve meaningful measurement of the 'true and fair view' perception gap (if any) that exists between the three groups.

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[4] Much of the literature has concentrated on the 'audit expectation gap'. However, the 'gap' also exists in other areas of accounting and financial reporting. For further information see Guy and Sullivan (1988); Anderson *et al.* (1993); Epstein and Geiger (1994); Chenok (1994); Klein, (1994); Lee (1994); McEnroe and Martens (2001); and Porter (1996); Hronsky (1998).

[5] These major participants in financial reporting do have distinct roles which will form part of their perceptual framework and contribute to differing perceptions. These roles will also differ within each group. However, each participant can have differing roles. For example, a preparer for one set of accounts may be auditor for another and a shareholder in a third. A demographic section of the survey aimed to capture the roles and relative financial accounting sophistication of each respondent. These roles are also subject to legislative, professional, and ethical constraints and guidelines.

Support for a 'True and Fair View' in Financial Reporting: Conflicting Views

Two statements epitomise the true and fair view debate, representing either end of a spectrum of views on its meaning, use and importance.

> There is more to life and accounting than a set of rules. There must be a meaning, some overriding objective. In financial reporting, it is the true and fair view. (Tweedie, 1994, p. xii)

> The true and fair view is the single most bizarre notion . . . in financial reporting. (Walton, 1993, p. 23)

Flint (1982), who describes 'true and fair view' as a safety net, and Tweedie (1994) appear to see the 'true and fair view' concept as essential in obtaining accountability and relevance in financial accounting and reporting in changing environments. They identity the conceptual nature of 'true and fair view', its use as a standard ensuring relevance, its relationship to professional judgment, ethics and morality, and its social, contextual nature.

Not all financial reporting commentators agree. Ryan (1967) called for the 'true and fair view' concept's replacement, pointing out that, as such a nebulous concept cannot be enforced in the courts, it was an unsuitable basis for financial reporting. Others who have questioned the concept's value include Cowan (1965), McGregor (1992) and Walton (1993). McGregor (1992, p. 70) argues that 'true and fair view' is an accounting anachronism in an era that has an explicit framework of accounting standards and concepts. Those that strongly emphasise judgement over rules support the true and fair view (Acher, 1998; Gerboth, 1988). Others see the 'true and fair view' as an excuse for non-compliance and the worst excesses of creative accounting (Baxt, 1968; McGregor, 1992). These opinions may reflect the authors' experience of the concept in action. In Australia, it was seen as a tool for individual company's non-compliance with legitimate requirements (e.g., Ryan, 1967; Baxt, 1968; McGregor, 1992), while in the U.K. it could be used by the accounting profession to override rules that focused on form rather than substance (e.g., Flint, 1982; Tweedie, 1994).

Chambers (1973a; 1973b) opposed the stance that emphasized rules over substance and GAAP over Truth and Fairness in accounting. He concluded (1973b, p. 129):

> A true and fair view cannot be given by financial statements which are made up of out-of-date, fictional and technically inconsistent pieces of information. Yet, a true and fair view must be given if informed judgments are to be made by the many parties who—sometimes in harmony and sometimes in conflict—have financial dealings with companies.

True and Fair View: The Legal View

Since 'true and fair view' has not been defined in legislation it has been left to the courts to decide on the legal meaning and application of the term. However, some commentators note that 'true and fair view' is too nebulous a concept for a court of law to base a trial on (Cowan, 1965; McGregor, 1992). Instead, courts are likely to determine its meaning according to practice, and that practice is in turn determined by GAAP as decided by expert accountants. In other words the concept becomes circular. The argument becomes according to whose version of GAAP is it true and fair (Chastney, 1975). Others (Chambers, 1973a, 1973b; Ashton, 1986; Chambers and Wolnizer, 1990; McGee, 1992) clearly disagree.

In a legal opinion sought by the U.K. Accounting Standards Board, Hoffman and Arden (1983), while concluding 'true and fair view' is a legal concept, stated that the courts will treat compliance with accepted accounting principles as *prima facie* evidence that accounts are true and fair, and equally the converse would apply. Following the passage of the U.K. Companies Act 1989 that gave statutory recognition of accounting standards, Arden (1993/1994) wrote that an accounting standard upheld by the law becomes an authoritative source of law itself. Yet case law would suggest that compliance with the rules is in itself insufficient to comprise a 'true and fair view' (Chambers, 1973b; Ashton, 1986; McGee, 1992; Ross, 1998).

The U.K. Companies Act 1989, while recognizing accounting standards, retained the 'true and fair view' as an overriding concept, thus permitting the accounting standard setting body, preparers and auditors to override the narrower requirements of the law. This appears to be a key difference between the legal requirement for 'true and fair view' in the U.K. and that in Australia and New Zealand prior to the adoption of IAS/IFRS. As interpreted by U.K. accounting bodies, the 'true and fair view' may be used to avoid compliance with the letter of the law, but not the spirit of GAAP (Parker and Nobes, 1994). The 1993 Financial Reporting Act gave GAAP the force of law in New Zealand with 'true and fair view' an additional requirement imposed on directors and auditors. The Australian Corporate Act 1991 appears to have a similar effect (Rahman *et al.*, 1994). A result of these differences is that New Zealand and Australian reporting entities' financial statements place additional information in the notes while U.K. and IASB rules require that the actual figures used in the statements be changed, and full explanations be given in the notes. Thus a key difference appears to be disclosure. However, the adoption of international standards with their limited override, together with the CLERP 9 Bill, means that it is contestable whether 'true and fair view' is overriding or additional in Australia (Dunk and Kilgore, 2000; Liebler, 2002; Dean, 2003; Dean and Clarke, 2004a, 2004b; 2005).

The Meaning of the 'True and Fair View' Concept

The 'true and fair view' concept has not been authoritatively defined. Some approaches to definition consider 'true and fair view' in relationship to its individual components (Cowan, 1965; Lee, 1982). Chastney (1975) raises the question of whether the terms true and fair together amount to more than their separate parts and suggests neither presupposes the other. Although Nobes and Parker's' 1991 survey of U.K. auditors concluded that the majority of auditors distinguished between the terms 'true' and 'fair', their 1991 survey of U.K. directors found most saw 'true and fair view' as a hendiadys. Leung (1995) found Australian directors also did not distinguish between true and fair.

Tracing the 'true and fair view' concept's history in Australia, Parker (1994) concluded that the term had become an exercise in deharmonization between

Australia and the U.K. Blake *et al.* (1996) came to a similar conclusion when they compared the U.K. findings of Nobes and Parker (1991) on auditor perceptions with those of an Australian study by Deegan *et al.* (1994). As reported by Blake *et al.* (1996), Deegan *et al.*'s (1994) survey of Australian auditors found, in contrast to Nobes and Parker's U.K. findings, that only 7 per cent of Australian auditors as opposed to 80 per cent (U.K.) distinguished true from fair. Blake *et al.* (1996) saw this difference as evidence that the attitudes to 'true and fair view' in the two countries differed as a result of accounting practices drawing apart, confirming the cultural and contextual nature of accounting. Blake *et al.* (1998) found that, like their Australian counterparts, most New Zealand auditors also saw true and fair as a hendiadys. This result is also consistent with much of the descriptive literature (Parker and Nobes, 1994).

Yet neither 'true' nor 'fair' lends itself to precise definition. The nature of truth, whether it is absolute or relative, whether it exists as a reality, an incontrovertible thing, or as an abstraction, whether it is dependent or independent of the believer/observer and whether any statement can be proven or merely falsified, are all aspects that that have been applied to accounting theory and research (Chua, 1986; Hines, 1988; Covaleski and Dirsmith, 1990; Alexander and Archer, 2003; Mattessich, 2003).

Fair (and fairness) is also open to varying degrees of interpretation and application (Chastney, 1975; Monti-Belkaoui and Riahi-Belkaoui, 1996). Both truth and fairness may vary according to time and place, and may be relative to the framework within which they reside. This pattern is not surprising in a socially constructed and constructing discipline such as accounting. Thus when Ryan (1967) describes 'true and fair view' as a slippery concept he is using emotive language to describe the reality of concepts when circumstances rather than definition may determine application and meaning, a 'reality' that Chambers (1973a, 1973b) strongly opposed. Chastney (1975) suggests that fairness means that, in order to achieve a true and fair view, financial reports should present information both impartially and in a manner that a reader can understand clearly.

The AICPA 1986 definition of fairness in accounting, however, applies to the application of judgment to established rules and is concerned with fairness in presentation rather than fairness as neutrality between different interests (Monti-Belkaoui and Riahi-Belkaoui, 1996). Zeff (1990/1994) disagrees, arguing that the term 'fair presentation' is superfluous in U.S. financial reporting because it is defined entirely in terms of GAAP.

Walton (1993) sees the meaning of true and fair view as one of three things:

1. a legal residual clause, or legislative safety net to cover any unforeseen eventuality,
2. a concept defined independently of accounting rules as a higher objective for accounting, or
3. generally accepted accounting principles.

Like Chastney (1975), Lee (1982), and Rutherford (1985), Walton tends towards the third explanation rather than accepting 'true and fair view' as an independent quality. These definitions depend on the acceptance that the consistent application of accounting principles amounts to a 'true and fair view'. This viewpoint has been gaining ground among professional accounting bodies. The New Zealand Preface (ICANZ, 2005, p. 5) states that:

> paragraph 8 . . . In order for general purpose financial reports to show a true and fair view it is necessary to comply with generally accepted accounting practice.
>
> paragraph 9. In the rare circumstances that compliance with generally accepted accounting practice does not result in the financial reports giving a true and fair view, additional information and explanations are to be provided in order to give a true and fair view.

This is similar to both the Australian and U.K. accounting professional bodies' interpretation (Parker and Nobes, 1994; Leung, 1995). There is a general similarity in the three countries' professional accounting organizations' interpretation of the concept in terms of compliance with GAAP (see Arden, 1993/1994). However, the professional accounting body in New Zealand, NZICA, in adopting IAS/IFRS, appears to be moving towards the U.S. standard for financial reporting *quality* when it writes:

> Fair Presentation
> General purpose financial statements should fairly reflect or provide a true and fair view of an entity's performance, position and cash flows. In this NZ *Preface*, the terms 'fair presentation' and 'fairly reflect' have the same meaning as 'true and fair view'. In order for general purpose financial statements to show a true and fair view they should comply with NZ GAAP. (NZ Preface, Para. 8, ICANZ, 2005)

This suggests that NZICA regards 'true and fair view', 'fairly reflects' and 'fair presentation' as interchangeable. A similar view was expressed by the IASC (IASB) in 1989 (Alexander and Archer, 2000). But Zeff (1993) strongly contests the equivalence of true and fair view as used in Europe (and presumably, New Zealand and Australia), and present fairly, as used in the U.S.A.

The Globalization of Financial Reporting; International Accounting Standards Combining 'True and Fair View' with 'Fair Presentation in Accordance with GAAP'

The IASB International Accounting Standard-1 (IAS-1) has had a varied history. The earliest IAS did not refer to either 'true and fair view' or 'fair presentation', the 1997 edition required fair presentation in accordance with GAAP, while the 1998 IAS 1 combined fair presentation and disclosure of compliance with IAS and a limited 'true and fair view' override if compliance is misleading. The current IAS/IFRS has reverted to the earlier 1997 version,[6] requiring fair presentation (para. 13) but paragraph 17 allows a limited override of IAS/IFRS to obtain fair presentation if the relevant regulatory framework does not prohibit departure, and management believes that compliance would be so misleading that it conflicts with the objectives of financial reporting set out in the IASB Framework (Alfredson *et al.*, 2005; Nobes, 2005).

As more countries such as Australia and New Zealand embrace International Standards, the true and fair view may become less relevant. Yet the fall of Enron and subsequently that of the auditing and consulting firm, Andersen, has also led to international debate examining whether the foundation for U.S. corporate financial reporting standards should become more principles-based than rules-based (FASB, 2002; ICANZ 2002; Livne and McNichols, 2003; Nelson, 2003; Schipper, 2003; Dean and Clarke, 2004a, 2004b; Nobes, 2005; Alexander and Jermakowicz, 2006; Bennett *et al.*, 2006; Benston *et al.*, 2006). This may in turn lead to a resurgence of the true and fair concept as a 'meta-rule' (Alexander and Archer, 2003), used either as an override (where compliance with GAAP is overruled if such compliance does not achieve a true and fair view; Alexander and Archer's 'type 3' compliance with rules) or an additional test for financial reporting quality (complying with GAAP but providing additional information to achieve a true and fair view; 'type 2' compliance).

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[6] See Alfredson *et al.* (2005).

The IASB standards have particular significance in what is rapidly becoming a global financial market. To meet the demands of the market, more and more countries and companies are adopting IASB standards for their financial reporting. Such a move is especially evident in the EU. (See Evans, 2003; Whittington, 2005; and Schipper, 2005, for a comprehensive discussion on the adoption of International Standards by the EU and its implications for the international convergence of Accounting Standards.) Countries such as Malaysia, Singapore and South Africa use IAS/IFRS rather than developing national standards, and Australia has also moved towards this solution to financial reporting diversity (Waller, 1996; Nobes, 1998). As New Zealand's financial reporting is closely allied to Australian financial reporting through a process of harmonization of accounting standards (Rahman *et al.*, 1994; Rahman *et al.*, 2002), New Zealand has followed the Australian lead.

This increasing use of IAS/IFRS follows the 1989 agreement with the world's stock market regulators (IOSCO) that, provided the IASB removed certain options and increased disclosure and included other options, the IOSCO would accept IAS/IFRS for companies listed on foreign exchanges (Nobes, 1998). Part of the motivation for this movement is to limit diversity in international financial reporting. Waller (1996, p. 40) quotes Carsberg, secretary general of the IASC from 1995 to 2001: 'Accountants inhabit a kind of Tower of Babel where we not only speak different languages but also give different interpretations of the same events and transactions'.

Like the U.S.A. and the U.K. GAAP, IAS/IFRS focus on investors' needs. This common focus, combined with the demands of global financial markets, arguably is helping to reduce diversity and produce a common international language for financial reporting. It also leads to more disclosure and emphasis on technical accounting standards and what appears to be a move towards 'fair presentation' instead of 'true and fair view' (Waller, 1996; Nobes, 1998). But one key difference between the phrase 'true and fair view' and 'fair presentation' is the use of the term 'true'. Therefore any clear national or international preference for the 'true and fair concept' may reflect a desire for 'truth' in accounting, even if that 'truth' is tempered by 'fair'.

Relevant Empirical Research

Researchers have examined the concept from a variety of viewpoints in order to explicate its meaning. In Australia Houghton (1987), using a semantic differential technique, found significant differences between accountants and non-institutional shareholders' connotative meaning for a true and fair view. Also accountants were found to be unable to perceive shareholders' understanding of the concept accurately. Although Houghton's research did not provide a definition of 'true and fair view', or conclusions about specific connotative meanings for the concept, it was one of the first studies to show that users and preparers of financial accounts were likely to perceive the term differently, creating an 'expectation gap'.

Laswad (1998) surveyed five New Zealand occupational groups directly and indirectly involved in the production of financial statements: auditors, financial controllers, corporate lawyers, accounting standard setters and accounting academics. He found that the groups shared similar understanding of the term and concluded that generally the results indicated that 'true and fair view' is associated with technical ('absence of material errors', and to a lesser extent, 'complies with accounting standards'), rather than with any conceptual meanings. However, there were minor significant differences between the corporate lawyers' and the other groups' perception of the similarity of some individual financial reporting terms to 'true and fair view'.

Low and Koh (1997) reported a contrasting finding in Singapore. Examining perceptions of the 'true and fair view' concept held by bank officers, accountants and managers, they found all three groups clearly distinguished 'true and fair view' from compliance with GAAP and/or legal requirements. Instead, 'true and fair view' was clustered with 'not misleading', 'objective and free of bias', 'accurate and correct' and 'exercise of proper judgment'. However, as with Laswad's (1998) study, they found that 'true and fair view' was clustered with 'absence of material errors'.

The methodology underpinning those studies, in particular Low and Koh (1997) and Laswad (1998), forms the basis of the methodology employed for this article.[7]

RESEARCH PROPOSITIONS AND METHOD

Propositions

This article reports the results of a survey undertaken in 1998,[8] using a questionnaire that focused on perceptions of the meaning of 'true and fair view' and its similarity/dissimilarity with other phrases associated with financial reporting, rather than investigating the concept's application. It was designed to investigate three propositions:

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[7] This method was chosen for this part of the research. The research was one part of a much larger project that also used Parker and Nobes (1991) and Nobes and Parker's (1991) method to explore the use of 'true and fair view', and McEnroe and Martens' (1998) method to examine preferences for 'true and fair view' versus 'fairly present' (Kirk, 2000, 2003).

[8] Although it may be argued that the results of a 1998 survey may no longer be relevant, the author believes that they are possibly more significant than they were in 1998/2000. New Zealand had its 'Enrons' in the 1980s, resulting in the 1993 Company Law and Financial Reporting Acts. The results of the survey strongly suggest that there is a gap between the perceptions of the profession and standard setters, and those of the three groups surveyed. There is a possibility that the change to IFRS (NZ IAS and NZIFRS) will lead to a move to substitute 'fair presentation' for 'true and fair view' in company law. This research formed part of a larger project that also examined the respondents' use and preferences for the concepts and found a strong preference for 'true and fair view' over other terms such as 'fairly present in accordance with GAAP'.

P1: There is no difference between the perceptions of auditors, financial directors and shareholders of listed companies in New Zealand of the meaning of the 'true and fair view' concept in financial reporting;

P2: There is no difference between the perceptions of auditors, financial directors and shareholders of listed companies in New Zealand of the meaning of the 'true and fair view' concept in financial reporting as compliance with GAAP and the law; and

P3: There is no difference between the perceptions of auditors, financial directors and shareholders of listed companies in New Zealand of the true and fair view requirement for financial reporting and that found in previous equivalent international research.

Method

The target population included three major groups involved in financial reporting, the preparers (represented by financial directors), auditors and shareholder users of the financial statements of companies required to comply with the Financial Reporting Act 1993. The final sample included financial directors, auditors and shareholders of companies listed on the (then) NZSE. Using DATEX 1997 annual reports as a data source, the following groups were selected:

- The entire population of financial directors of all companies listed on the New Zealand stock exchange in 1997;
- An audit partner representative from the entire population of audit firms/branches used by the above listed companies; and
- A random sample of the top forty shareholders of the above listed companies, excluding overseas investors and index funds.[9]

The research instrument was adapted from the Laswad (1998) and Low and Koh (1997) questionnaires. Laswad (1998) used a matrix, where respondents were asked to cluster ten phrases associated with financial reporting (in the U.K., Australia and the U.S.A. conceptual frameworks) into groups of similar meaning.

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[9] Previous research has mainly used surrogates for shareholders including, for example, financial analysts and bank officers (Low and Koh, 1997). However, the assumption that choices or preferences of expert users match that of shareholders is by no means proven. For example, the preferences of such analysts may be based on different priorities including self/professional/firm interest and protection rather than shareholder or the public interest.

The major problem in using actual shareholders rather than surrogates is identification. Identifying individual shareholders, together with their addresses, is a logistical problem. There are few choices unless existing databases are available for the researcher's use. One option, conducting a very large survey based on electoral role information, has at least two major disadvantages: cost and the inclusion of many participants outside the population of interest. Therefore the choice of the top forty shareholders was based on convenience sampling. The top forty shareholders are listed in company financial reports. While this choice eliminated the very small shareholder, the resulting sample included both private and institutional shareholders.

This is an adaptation of the 'card sorting' technique used in semantic research to elucidate perceptions of meaning shared by different individuals and groups (Houghton, 1987; Low and Koh, 1997; Laswad, 1998). Laswad cited Dunn-Rankin (1983) in observing that this method has the advantages of simple instructions and a reduction of response bias, as no structure is imposed on respondents' selections. Low and Koh (1997) also used a very similar instrument, but with twelve phrases.

Six phrases were added to the research instrument used by Laswad. They included two that Low and Koh (1997) found were associated with the 'true and fair view' concept in the Singapore study ('accurate and correct' and 'not misleading') and the two phrases NZICA (ICANZ, 2005) defines as equivalent in meaning to 'true and fair view' ('fairly reflect' and 'fair presentation'). Finally the words 'true' and 'fair' were added to explore further whether respondents differentiated between the two terms. Thus the matrix included sixteen terms.

The questionnaire was tested using a pilot sample and, after minor modifications, was posted to respondents. A follow-up letter including a replacement questionnaire was sent three weeks after the original posting. Respondents were offered the opportunity to receive a copy of the research findings. Fifty-five per cent of those replying requested the results. The final response rate was 68 per cent for auditors and 39 per cent for both financial directors and shareholders.

The primary method of analysis used individual differences scaling analysis (INDSCAL), a multidimensional scaling method technique also used by Low and Koh (1997). INDSCAL is a computer program created by Carroll and Chang (1970) for canonical decomposition of N-way tables and individual differences in multidimensional scaling. It is one of the most frequently used multidimensional scaling (MDS) methods for mapping individuals' perceptions (Carroll and Chang, 1970).

INDSCAL has been used in accounting research by Tan *et al.* (1989) to study differential perceptions of audit terms and by Schleifer and Shockley (1990) to investigate reactions of accountants and financial statement users to policies recommended by the Cohen Commission (Low and Koh, 1997). Low and Koh also used INDSCAL to investigate the similarities and differences of perceptions of 'true and fair view' held by accountants, managers and bank officers.

INDSCAL can indicate whether perceptions differ between groups and, if so, how they differ. Based on the similarity matrix of the sixteen phrases as perceived by the respondents, the relative perceptions are plotted on a common perceptual map for the groups. This enables one to infer the degree of association among the phrases by examining the relative positions of the sixteen phrases on the map (Jones and Koehly, 1993). Cluster analysis can then be applied to the results to obtain a clearer impression of differences and similarities between perceptions of the term held by respondents (Low and Koh, 1997). Individual group maps can also be derived from the INDSCAL coordinates.

Low and Koh (1997) suggested that *t*-tests and Wilcoxon tests be used to test for significant differences. However, testing for statistical significance using the INDSCAL results proved difficult. They show relative, not absolute, differences.

To overcome this problem data from the matrices were transformed into table form, as per Laswad (1998), allowing direct comparison between the three groups' clustering of selected individual terms with all other terms. The results of this analysis were then tested using ANOVA.[10]

FINDINGS

Descriptive findings are presented in the form of a matrix of perceptions of similarity and discussed for the sample as a whole (Figure A1, Appendix) and then for each group (figures available on request from author). Then the three groups' perceptions of similarity of specific phrases to all other phrases are tabulated, compared and tested for significant differences, using ANOVA. Finally the results of the INDSCAL tests are reported and discussed based on the derived figures and perceptual maps. Thus this article addresses the research objectives using three different modes of comparative analysis: descriptive, ANOVA and INDSCAL. Selected matrices, perceptual maps and comparative tables are included in the Appendix.

Descriptive Statistics

Questionnaire data were converted into proportions to enable between-group comparisons. Figure 1 (see Appendix) presents the perceptions of similarity held by the total respondent group measuring similarity by the proportion of total respondents who grouped two phrases together. To clarify the results, those similarities where more than 50 per cent of all respondents' paired phrases with each other are highlighted, and those phrases that are seen as most dissimilar are reported in italics and underlined.

The highest proportion of grouping was between the following phrases:

- 'Fair', 'fairly reflect' and 'fair presentation' (68 per cent and 77 per cent). This finding is also confirmed by the INDSCAL results using both SPSS and SAS statistical programs.
- 'Complies with GAAP as reflected in current accounting standards' and 'complies with statutory requirements'. At 73 per cent this suggests that both are associated. This result is expected, given that the statutory requirements in New Zealand require compliance with approved GAAP.
- 'Understandable and comprehensible' and 'relevant and useful' at 62 per cent. Again this is expected, as logically it would seem that for information to be both relevant and useful it must be both understandable and comprehensible.
- 'True' and 'accurate and correct' at 62 per cent. This suggests that 'true' was mainly seen in terms of factual accuracy.

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[10] INDSCAL presents relative rather than absolute distances and therefore the significance of different perceptions cannot be directly deduced from the perceptual maps, that is, the maps show that a difference exists, but not whether that difference is significant. Using ANOVA bypasses this problem by directly pairing phrases with other phrases.

- A 54 per cent grouping between 'absence of material errors' and 'accurate and correct', again expected as the presence of material errors would suggest incorrect and inaccurate figures.

Those phrases seen as most different include:

- 'Not misleading' and 'complies with statutory requirements' with 8 per cent pairing. This finding suggests the possibility that the converse may apply: 'complies with statutory requirements' could be seen as misleading. The same possibility applies to 'complies with GAAP as reflected in current accounting standards' as only 12 per cent of respondents paired the phrase with 'not misleading'
- 'Complies with statutory requirements' was also seen as very dissimilar to 'absence of material errors', 'accurate and correct', 'fair', 'fairly reflects', 'objective and free from bias' and 'true', while 'complies with GAAP as reflected in current accounting standards' shared a slightly less dissimilar pattern.
- Apart from their similarity rating with each other at 62 per cent, 'understandable and comprehensible' and 'relevant and useful' were seen as dissimilar to all other phrases, raising questions as to the perceived usefulness of current financial reporting.[11]
- The highest similarity for 'true and fair view' was 'true' at 43 per cent. Thus the subject of the research was generally seen as different to all other phrases, including the three phrases seen as equivalent by NZICA (ICANZ, 2005).
- 'True' was seen as dissimilar to all other phrases apart from 'accurate and correct' at 54 per cent. With a pairing of just 20 per cent with 'fair', the results suggest that the words 'true' and 'fair' are understood as having distinctly separate meanings. However, when combined in the phrase 'true and fair view' and used as a single term in financial reporting, the term is seen as a hendiadys.
- 'Complying with GAAP as represented in approved accounting standards' is not seen as similar to any of the 'fair' terms including 'true and fair view'.

The last three results all suggest that respondents do not perceive compliance with statutory and GAAP requirements on their own as presenting a true and fair view.

Although the results also show significant similarities and differences between the pairing of most phrases, these are outside the scope of the present research objectives and are a subject for further research. Other groupings are discussed in the section that reports the ANOVA findings, including Table A1 (Appendix). This and other tables available from the author directly compare the three groups' differing perceptions of the selected phrases, 'complies with GAAP as reflected in current accounting standards', 'fair', 'fairly reflects', 'fair presentation', 'true and fair view' and 'true'. Tables are also available (on request from the author) listing all Chi-square and Monte Carlo tests that showed significance at either the 0.05 or 0.10 level for the grouping of all phrases in the matrix.

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[11] The conceptual frameworks of New Zealand, the US and Australia all support the usefulness paradigm of financial reporting, as does much of the literature (AICPA, 1994; Mathews and Perera, 1996).

As the total matrix is compiled from the data included in the individual matrices, the relationships for each single group are very similar to Figure A1. However, auditors clearly placed 'not misleading' and 'absence of material errors' closer together at 50 per cent, whereas financial directors differentiated between the two phrases at 21 per cent, and shareholders at 33 per cent. A reasonably large proportion of auditors also grouped 'full disclosure' with both 'complies with GAAP as reflected in current accounting standards' (50 per cent) and 'complies with statutory requirements' (39 per cent), as did the financial directors (55 per cent and 48 per cent). However, shareholders did not associate 'full disclosure' with any other term, with the highest pairing of the term (30 per cent) with 'accurate and correct'.

The highest association for the auditors was between 'complies with statutory requirements' and 'complies with GAAP as reflected in current accounting standards', closely followed by 'understandable and comprehensible' and 'relevant and useful', then by 'fair', 'fairly reflects' and 'fair presentation'. Financial directors showed highest similarity between 'fair', 'fairly reflects' and 'fair presentation', followed by 'complies with GAAP as reflected in current accounting standards' and 'complies with statutory requirements', then 'absence of material errors' and 'accurate and correct', then 'understandable and comprehensible' and 'relevant and useful'. Shareholders demonstrated a similar pattern to financial directors; however, they tended to group 'true and fair view' a little closer to 'true' than the other groups. The overall impression of the individual results is that the three groups share a generally similar pattern of perception of similarities and differences between terms, with shareholders' and financial directors' patterns closer to each other than to the auditors'.

Statistical Analysis

The ANOVA interpretation is presented in Table A1 in the Appendix. Together with other tables available from the author, Table A1 directly compares the three groups' perceptions of the (dis)similarity of selected phrases to all other phrases, and the results of Chi-square and Monte Carlo tests for statistically significant between-group differences. Monte Carlo tests were used in conjunction with Chi-square tests as they permit more accurate tests of significance when analysing data whenever the minimum cell value falls below five (Stephens *et al.*, 2005).

The phrases examined were 'true' and 'fair' and 'true and fair view' directly related to interpretations of the meaning of 'true and fair view', and 'fair', 'fairly reflects', 'fair presentation' and 'complies with GAAP as in approved accounting standards', the group of other phrases associated in the literature with ensuring the quality of financial accounting.

True There was one statistically significant between-group difference, the grouping of 'corresponds with economic substance' with true. The largest difference from expected is the auditor group with a positive residual of 0.75, while fewer than expected financial directors associated the two terms. 'True' is clearly perceived as similar to 'accurate and correct', but not to 'fair', confirming the descriptive results above. All groups associated the term with accurate and correct, but the shareholders' response showed the highest association with 'true and fair view' at 53 per cent.

Fair There are more statistically significant between-group differences in the perceptions of similarity between 'fair' and other phrases. (These are 'absence of material errors', 'complies with statutory requirements', 'complies with GAAP as reflected in current accounting standards' and 'full disclosure'.) In each case the major difference is between auditors (more than expected) and the other two groups. A higher percentage of auditors see these four phrases as similar to 'fair'. This may be related to auditors' familiarity with accounting standards, the legal requirement for auditors to give an opinion on whether accounts present a 'true and fair view', their use of materiality in their audit judgments and their greater familiarity with the U.S. terminology of 'fair presentation in accordance with GAAP'. A high percentage of all groups associated the term with both 'fairly reflects' and 'fair presentation'.

Fairly Reflects 'Fairly reflects' was seen as even less similar to 'relevant and useful' and 'understandable and comprehensible' than 'fair', but, as in the perceptual maps, closely related to 'fair' and 'fair presentation'. There was one statistically significant difference: the perception of similarity between 'fairly reflects' and 'absence of material errors'. Again this difference was primarily between the auditors (positive) and the other two groups.

Complies With GAAP as Reflected in Current Accounting Standards The one statistically significant between-group difference was full disclosure. In this case the statistically significant difference was between shareholders and the other groups, with a smaller proportion of shareholders associating 'complies with GAAP as reflected in current accounting standards' with 'full disclosure'. This may be due to shareholders' comparative lack of familiarity with the disclosure requirements of GAAP. There was also one close to statistically significant between-group difference at 0.06 (significant at the 0.10 level) in the association of 'fair' and 'complies with GAAP as reflected in current accounting standards'. More auditors and fewer shareholders than expected associated the terms.

Fair Presentation There were no statistically significant between-group differences for 'fair presentation'. However, a slightly higher percentage of auditors associated 'fair presentation' with 'fair' and 'fairly reflects'. More auditors (50 per cent) than financial directors (38 per cent) and shareholders (35 per cent) associated 'fair presentation' with 'true and fair view'.

True and Fair View Table A1 (Appendix) compares 'true and fair view' to all other phrases. There is no statistically significant between-group differences in the perception of 'true and fair view' related to other phrases. However, two groupings with the 'true and fair view' approached significant levels at the 0.05 per cent level: 'corresponds with professional judgement' (0.056) and 'full disclosure' (0.065). Fewer than expected shareholders associated 'true and fair view' with 'professional judgment' and fewer than expected directors associated the concept with 'full disclosure'. No phrase exceeded the 50 per cent level of association. However, 50 per cent of the auditors saw 'true and fair view' as similar to 'fair presentation', and 44 per cent grouped it with 'corresponds with professional judgement'. Forty-eight per cent of financial directors gave the highest grouping to 'not misleading' and 'corresponds with professional judgment'. Thus both professional groups recognized the element of judgment the phrase signifies in the literature. Shareholders grouped 'true and fair view' most often with 'true', reflecting many of their qualitative comments (not reported in this article) that emphasized the need for truth in accounting.

The main differences reported between the 'true and fair view' and other phrases were common to all respondents: 'true and fair view' compared to 'relevant and useful' and 'understandable and comprehensible'. Only 5 per cent of the auditors grouped 'relevant and useful' with 'true and fair view'. This appears to be in direct contrast to Tweedie (1994), who argued that the 'true and fair view' was needed to ensure relevance in changing circumstances, a view similar to that held by Chambers (1973a). However, this result does not mean that the 'true and fair view' precludes relevance and usefulness, just that the respondents do not perceive the phrases to be similar in meaning. Few respondents associated 'true and fair view' with 'corresponds with economic substance', a result that corresponds closely to Laswad (1998), appearing to confirm his findings of lack of perception of the 'true and fair view' concept's application as a method of securing substance over form.

INDSCAL Results

The results of the descriptive analysis are confirmed in the perceptual maps formed using INDSCAL in both the two-dimensional SPSS solution and the two- and three-dimensional SAS solution. To compare the perceptions of the different groups, a true INDSCAL on the (dis)similarity matrices was performed. Instead of completing a multidimensional solution (MDS) on each matrix separately, INDSCAL tries to find a single pattern that can be made to fit all cases, by stretching and shrinking the dimensions. Low and Koh (1997) found that their three groups had very similar perceptions using a two-dimensional map. However, the initial difference between this study's individual groups' maps using SPSS suggested that more dimensions were needed to accommodate the different perceptions. Thus SAS was used to generate three and four-dimensional solutions.

The badness of fit[12] was not as low as the Koh and Low (1997) finding of 0.0638. At a single dimensional solution it is 0.45; for a two-dimensional solution it is 0.24; for three dimensions it is 0.15; and for four dimensions it is 0.12. Although the recommended maximum number of dimensions lies between three and four $((16 - 1) \div 4 = (n - 1)/4))$ (Kruskal and Wish, 1978), five- and six-dimension solutions were also tried. They improved the badness of fit by about 0.03 per extra dimension. It appears that, although a three-dimensional solution is an improvement on two, more elaborate solutions do not offer statistically significant improvement.

The diagonal coefficients for each dimension for each of the groups are very similar for both two and three dimensions as all are quite close to one. These statistics are obtained by taking the square root of the coefficients to measure the weight each group places on that dimension (Carroll and Chang, 1970; Kruskal and Wish, 1978; Low and Koh, 1997). As suggested by the descriptive analysis, the result suggests that all groups have fairly similar views. However, in the three-dimensional solution, the auditors placed slightly more weight to differences in the first dimension, shareholders paid more attention to differences on dimension two, and financial directors to dimension three. Thus there are minor differences between the groups' perceptual maps.

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[12] INDSCAL uses badness of fit rather than the converse goodness of fit. Thus the lower the figure, the better the fit.

Combined INDSCAL Solution Interpreting the clusters is complex in the three-dimensional solution. To aid in interpretation, the solution is presented in two views, which represent the different views of a cube. Dimension 1 and 3 in Figure A2 (Appendix) can be understood as an overhead view of the three-dimensional cube, showing distances 'looking down' while the dimension 1 and dimension 2 view represent a side view. Thus those phrases that are grouped together in both views slightly better represent the clusters. This clusters:

- 'Understandable and comprehensible' (s16) and 'relevant and useful' (s13), and to a lesser extent 'correspond with economic substance' (s6).
- 'Complies with statutory requirements' (s4) and 'complies with GAAP as reflected in current accounting standards' (s3).
- 'Fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9).

Those that are furthermost apart are the:

- 'Complies with statutory requirements' (s4) and 'complies with GAAP as reflected in current accounting standards' (s3) grouping, and the 'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9) cluster.
- While 'true and fair view' (s14) falls into a similar quarter as the 'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9), it is still seen as separate. It is also differentiated from the two terms 'complies with statutory requirements' (s4) and 'complies with GAAP as reflected in current accounting standards' (s3).
- The cluster 'understandable and comprehensible' and 'relevant and useful' is clearly separated from both the 'fair', 'fairly reflects' and 'fair presentation', and the 'complies with statutory requirements' and 'complies with GAAP as reflected in current accounting standards' clusters, as well as from 'true and fair view'.

These results clearly suggest that compliance with statutory and accounting standards is not seen as equivalent to either 'true and fair view', or to 'fair', 'fairly reflects' and 'fair presentation'. Perhaps more significantly, *none* of these groupings appears to be perceived as similar to understandability, relevance and usefulness in financial reporting, key qualities sought by the conceptual frameworks[13] promulgated by the accounting professional bodies, for example, Australia's

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[13] For a comprehensive critique of the conceptual frameworks' projects and outcomes, see Dean and Clarke (2003) and Hines (1989).

SACs, U.S.A.'s SFACs, the IASB Framework, and the New Zealand SC (Mathews and Perera, 1996; Godfrey *et al.*, 2003). Thus it appears that those terms generally applied to ensuring quality in financial reporting are not related to the Jenkins Report's (AICPA, 1994)[14] key findings and emphasis on the user approach, and the key objective of financial reporting it identified: usefulness and relevance.

Individual Perceptual Maps The individual perceptual maps for the three separate groups give an overall impression of slight differences in certain areas. However, it is difficult to assess significance as the INDSCAL maps represent relative rather than absolute distances (Koh and Low, 1997).

The auditors cluster: (a) 'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9) closely on all dimensions and group these with 'true and fair view' (s14) and 'corresponds with proper professional judgement' (s5) in dimensions 1 and 2, consistent with earlier research and the literature. Again, (b) 'complies with GAAP as reflected in current accounting standards' (s3) and 'complies with statutory requirements' (s4) are closely related but seen as different to the previous grouping. A third main cluster of (c) 'corresponds with economic substance' (s6), 'objective and free from bias' (s12), 'relevant and useful' (s13) and 'understandable and comprehensible' (s16) is again distanced from both the other groups; as is the cluster of (d) 'absence of material errors' (s1) and 'not misleading' (s11); and (e) 'accurate and correct' (s2) with 'true' (s15). The largest dissimilarity is between the clusters (a) 'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9); and (c) 'corresponds with economic substance' (s6), 'objective and free from bias' (s12), 'relevant and useful' (s13) and 'understandable and comprehensible' (s16).

The financial directors cluster: (a) 'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9); (b) 'complies with GAAP as reflected in current accounting standards' (s3) and 'complies with statutory requirements' (s4) with 'full disclosure' (s10); (c) 'corresponds with economic substance' (s6), 'relevant and useful' (s13) and 'understandable and comprehensible' (s16); (d) 'not misleading' (s11), 'objective and free from bias' (s12) and 'true and fair view' (s14); and (e) 'absence of material errors' (s1) and 'accurate and correct' (s2). The largest dissimilarity is between the clusters (a) 'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9) and (c) 'corresponds with economic substance' (s6), 'objective and free from bias' (s12), 'relevant and useful' (s13) and 'understandable and comprehensible' (s16).

The shareholders' three-dimensional solution again differs from the financial directors and auditors: (a) 'Fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9) are clustered; as are (b) 'complies with statutory requirements' (s4) and 'complies with GAAP as reflected in current accounting standards' (s3); and (c) 'relevant and useful' (s13) and 'understandable and comprehensible' (s16), with the biggest dissimilarity between groups (a) and (c). They also loosely cluster 'true and fair view' with 'true', consistent with a more literal translation of the term and an emphasis of the importance of 'true'.

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[14] The Jenkins Report (*Improving Business Reporting—a Customer Focus*) was a comprehensive report of the AICPA Special Committee on Financial Reporting, chaired by Edmund Jenkins. The enquiry followed criticism levelled at financial reporting for failing to meet the needs of its users and becoming increasing irrelevant in an 'information age'. The full report can be downloaded at http://www.aicpa.org/members/div/acctstd/ibr/index.htm.

The shareholders and the financial directors have very similar clusters and differ mainly in their placing of 'true and fair view'. Both groups differ slightly from the auditors, although the auditors and the financial directors have similar grouping of the phrases containing the word 'fair'. The results show a general similarity, with a closer resemblance between the shareholders' and financial directors' perceptual maps than the auditors'. The marginal differences reflect the similar but slightly different coefficients of the three-dimensional INDSCAL solution that showed all groups with coefficients close to one, the auditors with a slight emphasis on dimension 1, the financial directors on dimension 2, and the shareholders on dimension 3.

DISCUSSION

The principal findings are that:

- Despite subtle between-group differences in the descriptive, ANOVA and INDSCAL findings, all groups generally share a similar perception of meaning of the phrase 'true and fair'.
- 'True and fair view' does not appear to be associated with compliance with GAAP and the law.
- 'True and fair view', compliance with GAAP, and compliance with statutory requirements all appear *not* to be associated with 'relevant and useful', 'correspondence with economic substance', and 'understandable and comprehensible'.

These findings are all similar to Low and Koh (1997). This reflects the international nature of the capital market at listed company level. However, the second finding conflicts with Laswad's (1998) conclusions, that 'true and fair view' is associated with the technical rather than the qualitative aspects of financial reporting. Compared to Laswad, a smaller proportion of auditors and financial directors related 'true and fair view' to 'absence of material errors' and 'complies with GAAP as reflected in current accounting standards'. The reason for this difference may be the difference in the populations surveyed. Laswad included all New Zealand financial auditors in his total population, whereas the population for this survey was confined to auditors of listed companies. These were mainly members of the larger international audit firms. The same proviso applies to the population of financial directors confined to listed companies in this study rather than financial directors generally, as in Laswad's. It may be expected that the auditors and financial directors of listed companies are exposed to a greater degree of regulation, and international pressures and influences, and as a group may be involved in more complex financial reporting and accounting operations. Further research is required to explicate this difference, by comparing the perceptions of auditors and financial directors according to differing demographic, business and economic factors, including the type of audit work conducted, and the nature and size of firm or business.

As with Laswad (1998), this research study's findings do not support the 'user' approach to defining the meaning of 'true and fair view'. All groups do not perceive 'true and fair view' as similar to 'useful and relevant' and 'understandable and comprehensible'. Other findings include that, apart from the auditors, fewer than a third of the groups saw 'true and fair view' as similar to 'fairly reflects' and 'fair presentation', a finding that appears to contradict the ICANZ (2005) statement that the terms are equivalent. The highest association is 47 per cent, (auditors) between 'fair presentation' and 'true and fair view'. Another finding is that 'true' is not seen as the same as 'fair'.

The finding that the groups generally share a similar perception of the meaning of 'true and fair view' confirms propositions 1 and 2. Proposition 3, that there is no difference between the results of this and previous international research, is partially confirmed (see Table A3, Appendix). Due to the slightly different nature of the research instruments, samples and analysis, no conclusions on the significance of similarities or differences can be drawn between the different research studies. It appears, however, that the cultural differences between countries such as Singapore and New Zealand may have a lesser influence on perceptions of 'true and fair view' in financial reporting than other factors also recognized in the literature such as a common regulatory and financial structure (Nobes, 1998, 2005; Alexander and Archer, 2000; Evans, 2004).

All three studies found that true and fair view was not associated with the user perspective of financial reporting. No group saw 'true and fair view', or any of the phrases containing 'fair', or complying with GAAP and regulations, as similar to 'understandable and comprehensible' or 'relevant and useful'. Although such a consistent finding suggests that the respondents do not associate the terms when asked for similarity/dissimilarity of meaning, this does not preclude association in use. Respondents may perceive 'true and fair view' and complying with GAAP and regulations as methods of achieving usefulness and relevance. Without future research to determine this, no conclusions can be drawn on whether or not the regulatory standards of financial reporting quality are viewed as fulfilling these two major objectives of financial reporting promulgated in the conceptual frameworks. However, Dean and Clarke (2004a) argue that accountants, auditors and the professional bodies appear to assume that complying with accounting standards will provide the markets with useful financial information, while regarding the quality signifier 'true and fair' as secondary to compliance.

CONCLUSIONS, RECOMMENDATIONS FOR FUTURE RESEARCH AND IMPLICATIONS OF FINDINGS FOR FINANCIAL REPORTING

The findings of this study confirm that respondents distinguish between 'true and fair view' and other potential qualitative terms. This finding is particularly important in relationship to the New Zealand professional accounting bodies' pronouncement that 'true and fair view', 'fairly reflects' and 'fair presentation' are equivalent. The finding also suggests that 'true', as one of the elements separating 'true and fair view' from terms that include only 'fair', may be an important element in participants' perceptions of factors required for financial reporting quality.

Generally the findings suggest that there is little significant overall difference in the perceptions of the three New Zealand groups, and demonstrate consistency with much of the previous empirical research. Thus it appears that within the respondent populations, there is little evidence to suggest an expectation gap related to the 'true and fair view' concept. The results also show that 'true and fair view' is not seen as equivalent to 'fairly reflect' or 'fair presentation'.

The general similarity of auditors', financial directors' and shareholders' responses and that of other empirical research also suggests that the globalization of financial reporting may be leading to a lessening of between-country differences in perceptions of terms such as 'true and fair view' in financial reporting. Thus the largely descriptive research reported in the literature review that suggested national and international diversity in the interpretation of 'true and fair view' may reflect earlier experience and views of the concept specific to the circumstances relevant to that time and place. The finding also partially counters the earlier conclusions by Higson and Blake (1993) and Parker (1994) that the 'true and fair view' concept contributes to deharmonization and by Blake *et al.* (1996) that it leads to 'declustering'.

These findings are subject to several limitations. The shareholder group was confined to the top forty shareholders of listed companies in New Zealand. As such, this excluded smaller shareholders, and would be expected to include a higher proportion of institutional and sophisticated shareholders than the total population of New Zealand shareholders. Demographic statistics revealed that there are at least three groups of shareholders even among the relatively large shareholders: sophisticated, less sophisticated shareholders with no formal accounting education, and those that have little or no knowledge of financial reporting and its regulation. The last group is likely to be under-represented in any equivalent research into shareholder perceptions. Therefore, the results may not be extended to shareholders generally.

There are several major implications for financial reporting arising out of this research. Of particular importance are the findings that respondents distinguish between 'true and fair view' and other potential qualitative terms. This finding is significant in relationship to the New Zealand professional accounting body's pronouncement that 'true and fair view', 'fairly reflects' and 'fair presentation' are equivalent. It implies that the professional body, NZICA (which includes in its membership some of the respondents to this survey, the audit partners and a considerable number of the respondents who listed their occupation as chartered accountants) may not be fully conversant with members' perceptions, or those of major users and preparers of financial reporting. This suggests that an expectation gap may exist between the professional accounting association (NZICA) and the respondents' perceptions. As the financial statement auditors surveyed are required to be members of NZICA or an equivalent body, this is an unexpected result and requires further investigation.

The finding that the two groups of phrases 'true and fair view' and 'fair presentation', and compliance with GAAP and the law, are not perceived similar to each other or to 'relevant and useful' or 'understandable and comprehensible', also raises issues for financial reporting regulation. While this may imply that financial reporting standards are not achieving two of the major recognized objectives of financial reporting, relevance and usefulness, the standards may also be seen as a tool to achieve those objectives. By combining the various qualitative and quantitative standards of financial reporting under a 'true and fair view' umbrella, the reliability objective can be balanced with relevance and understandability to achieve usefulness. This aspect needs further investigation.

Laswad (1998) suggested extending his research to users of financial reports, and Low and Koh (1997) called for similar research in other financial reporting regimes. This study has partially fulfilled their suggestions. Finally, although the 'true and fair view' concept has been an integral part of financial reporting regulation and/or professional requirements in its present form since 1947, there remain important areas for empirical research using both qualitative and empirical methods and triangulation of the results to increase the validity of the findings (Patton, 1990; Covaleski and Dirsmith, 1990). For example, in-depth interviews, experiments and questionnaires can be used, and longitudinal historical comparisons made on the perceptions, use and acceptance of both 'true and fair view' and other terms and labels used as signifiers of accounting and financial reporting attributes and qualities.

The findings also suggest that 'true', as one of the elements separating 'true and fair view' from terms that include only 'fair', may be an important element in participants' perceptions of factors required for financial reporting quality. This is especially relevant following the Sarbanes-Oxley Act that now requires directors to sign off the accounts as 'true' and as 'fair'.[15] The relationship between 'true' and 'fair and true view' reflected in participants' perceptions may be far closer to a literal interpretation of 'true and fair view' than the more sophisticated, professional and technical interpretation that relates to accounting in practice or GAAP. The overall results suggest that the majority of the three groups of New Zealand respondents do not perceive the concept in relationship to GAAP. Whether the reality of applying the International Financial Reporting Standards will emphasize or deemphasize 'true and fair view' may be debated (Dunk and Kilgore, 2000; Liebler, 2002; Dean and Clarke, 2004a, 2004b), yet the results of this research and other research reported in this form demonstrate that the 'true and fair concept' is not McGregor's (1992) accounting 'anachronism' but remains important in a world of explicit accounting standards.

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[15] Section 302 of the Sarbanes-Oxley Act, 2002, requires that the CEO or CFO or other senior management certify that their financial reports, based on their knowledge, do not contain any untrue statement of a material fact (US Congress, 2002).

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APPENDIX*

Key to Figures and Tables

Term	Abbreviations	
Absence of material errors	AM	s1
Accurate and correct	AC	s2
Complies with GAAP as reflected in current Accounting Standards	CG	s3
Complies with statutory requirements	CS	s4
Corresponds with proper professional judgment	CJ	s5
Corresponds with economic substance	CE	s6
Fair	F	s7
Fairly reflects	FR	s8
Fair presentation	FP	s9
Full disclosure	FD	s10
Not misleading	NM	s11
Objective and free from bias	OB	s12
Relevant and useful	RU	s13
True and fair view	TF	s14
True	T	s15
Understandable and comprehensible	UC	s16

FIGURE A1

MATRIX OF SIMILARITIES OF PERCEPTIONS FOR TOTAL RESPONDENTS

(Percentages)

All	AM	AC	CG	CS	CJ	CE	F	FR	FP	FD	NM	OB	RU	TF	T	UC
AM	100															
AC	**54**	100														
CG	15	15	100													
CS	11	14	**73**	100												
CJ	12	12	35	28	100											
CE	18	12	15	18	31	100										
F	15	12	14	11	20	16	100									
FR	19	15	14	*9*	22	15	**77**	100								
FP	15	14	18	14	22	18	**68**	**77**	100							
FD	15	25	35	28	20	20	15	15	20	100						
NM	31	14	12	*8*	20	14	28	31	32	19	100					
OB	19	19	15	12	31	22	31	31	31	28	43	100				
RU	11	11	14	14	22	30	12	12	15	20	15	22	100			
TF	20	27	20	14	31	16	35	35	37	27	35	31	15	100		
T	28	57	12	11	*9*	*9*	20	18	15	23	20	20	*9*	43	100	
UC	15	15	12	14	20	28	12	*9*	15	22	15	22	**62**	14	11	100
	AM	AC	CG	CS	CJ	CE	F	FR	FP	FD	NM	OB	RU	TF	T	UC

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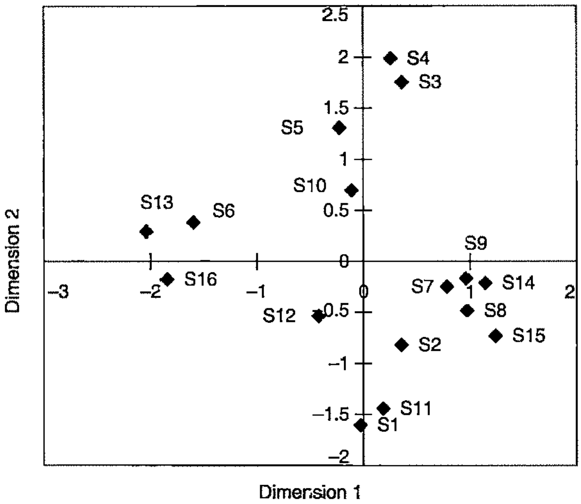
* Figures and tables summarizing results in respect of the separate variables are available from the author.

FIGURE A2

THREE-DIMENSIONAL INDSCAL SOLUTION

Dimensions 1 and 2



Dimensions 1 and 3 (overhead view of 'cube')

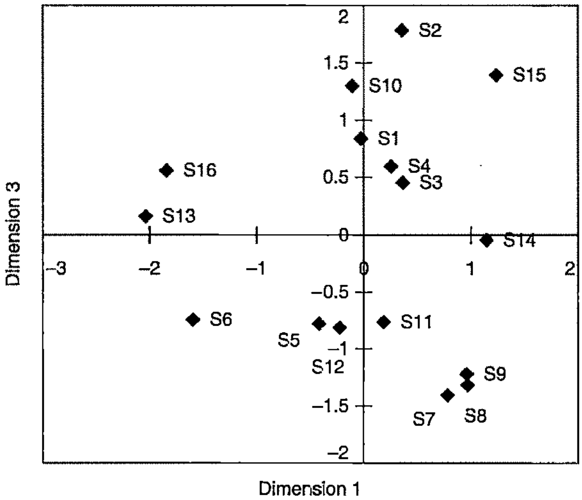


TABLE A1

TRUE AND FAIR VIEW COMPARED TO OTHER PHRASES

	Selected phrases surveyed		Auditor[c]	Director[a]	Shareholder	χ^2 Df = 2	Monte Carlo significance[b]
1	Absence of material errors	P	28 (64.4)	17 (82.4)	22		
		N	5	5	18		
		Expected	2.91	6.89	18.20		
2	Accurate and correct	P	22	14	35		
		N	4	4	29		
		Expected	3.84	9.10	24.06		
3	Complies with GAAP as reflected in current Accounting Standards	P	17 (53.3)	38 (41.2)	17		
		N	3	11	14		
		Expected	2.91	6.89	18.20		
4	Complies with statutory requirements	P	17 (24.4)	24 (11.7)	10		
		N	3	7	8		
		Expected	1.87	4.43	11.70		
5	Corresponds with proper professional judgment	P	44 (31.1)	48 (25.0)	25		
		N	8	14	21	.0592*	.0561*
		Expected	4.46	10.57	27.97		(.0502, .0620)
		Residual	3.54	3.43	−6.97		
6	Corresponds with economic substance	P	11 (11.1)	24 (11.8)	16		
		N	2	7	13		
		Expected	2.28	5.41	14.31		
7	Fair	P	28	41	35		
		N	5	12	29		
		Expected	4.78	11.31	29.91		
8	Fairly reflects	P	39	45	33		
		N	7	13	27		
		Expected	4.88	11.56	30.96		
9	Fair presentation	P	50	38	35		
		N	9	11	29		
		Expected	5.09	12.05	31.86		
10	Full disclosure	P	28(22.2)	10 (17.7)	35		
		N	5	3	29	.0654*	.0608*
		Expected	3.84	9.10	24.06		(.0546, .0670)
		Residual	1.16	−6.10	4.94		
11	Not misleading	P	39	48	30		
		N	7	14	25		
		Expected	4.78	11.31	29.91		
12	Objective and free from bias	P	22 (24.4)	41 (47.0)	33		
		N	4	12	27		
		Expected	4.46	10.57	28.97		

TABLE A1

(CONTINUED)

	Selected phrases surveyed		Auditor[a]	Director[a]	Shareholder	χ^2 Df = 2	Monte Carlo significance[b]
13	Relevant and useful	P	5 (4.4)	17 (5.8)	18		
		N	1	5	15		
		Expected	2.18	5.16	13.66		
15	True	P	28	31	53		
		N	5	9	44		
		Expected	6.02	14.26	37.72		
16	Understandable and comprehensible	P	11(4.4)	17 (0.0)	14		
		N	2	5	12		
		Expected	1.97	4.67	12.36		

* Significant at the .10 level.

[a] Figures in brackets = Laswad's (1998) proportions.

[b] Figures in brackets = 99% confidence interval for Monte Carlo Tests.

TABLE A2

SUMMARY OF SEPARATE GROUPS' CLUSTER ANALYSIS

Sample		Cluster (# equals largest dissimilarity)
Auditors	a #	'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9)
	b	'complies with GAAP as reflected in current accounting standards' (s3) and 'complies with statutory requirements' (s4)
	c #	'corresponds with economic substance' (s6), 'objective and free from bias' (s12), 'relevant and useful' (s13), and 'understandable and comprehensible' (s16)
	d	'absence of material errors' (s1) 'not misleading' (s11)
	e	'accurate and correct' (s2), and 'true' (s15)
Financial directors	a #	'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9)
	b	'complies with GAAP as reflected in current accounting standards' (s3) and 'complies with statutory requirements' (s4) with 'full disclosure' (s10)
	c #	'corresponds with economic substance' (s6), 'relevant and useful' (s13), and 'understandable and comprehensible' (s16)
	d	'not misleading' (s11), 'objective and free from bias' (s12), and 'true and fair view' (s14)
	e	'absence of material errors' (s1) and 'accurate and correct' (s2)
Shareholders	a #	'fair' (s7), 'fairly reflects' (s8) and 'fair presentation' (s9)
	b	'complies with GAAP as reflected in current accounting standards' (s3) and 'complies with statutory requirements' (s4)
	c #	'relevant and useful' (s13) and 'understandable and comprehensible' (s16)

TABLE A3

INTERNATIONAL COMPARISON SUMMARY OF MEANING OF TFV

Researcher	Location	Respondents	Major findings	Kirk 1998
Houghton (1987)	Australia	Accountants and non-institutional shareholders	Accountants and non-institutional shareholders have different connotative meaning for TFV	Differs in degree . . . Accountants and non institutional shareholders have slightly different connotative meanings for TFV
Laswad (1998)	New Zealand	Auditors, financial controllers corporate lawyers, standard setters and accounting academics	Groups shared similar meaning for TFV. TFV generally associated with GAAP but not with the user perspective	Auditors and financial directors share similar meaning for TFV. TFV is not associated with GAAP or compliance with statutory requirements. TFV not associated with the user perspective
Low & Koh (1997)	Singapore	Bank officers, accountants, managers	Groups shared similar meanings for TFV. TFV was not associated with GAAP	Very similar results

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ALI ATAULLAH, ANDREW HIGSON AND MARK TIPPETT

Real (Adaptation) Options and the Valuation of Equity: Some Empirical Evidence

Data from 1,374 firms across four broad industrial groupings are used to assess the contribution that real (adaptation) options make to overall equity values. The analysis indicates that real (adaptation) options make a significant contribution to the equity value of firms with a market to book ratio (of equity) of around unity or less. As the market to book ratio grows beyond this level, however, the contribution made by real (adaptation) options decays quickly away and equity values are mainly comprised of the present value of the dividends that firms are expected to pay. This means that for around one in every five of the firms in our sample real (adaptation) options make a significant contribution to overall equity value. Thus, while linear equity valuation models would seem to be appropriate for the substantial majority of firms on which our sample is based, there is a sizeable minority of firms where real (adaptation) options have a significant impact on equity values. For this latter group of firms there will be a non-linear relationship between equity value and its determining variables. This has important implications for the regression procedures that are applied in this area of accounting research.

Key words: Accounting; Equity; Real (adaptation) options; Recursion value.

Much has been written in recent years about the relationship between equity prices and the book or accounting figures that appear in the corporate financial statements. The predominant paradigm in both the theoretical and empirical literature is predicated on the assumption that there is a purely linear relationship between the price of a firm's equity stock and the book figures appearing on its financial statements (Dechow *et al.*, 1999; Myers, 1999; Morel, 2003). Recently, however, compelling evidence has emerged which suggests there is potentially, a convex and highly non-linear relationship between equity prices and the summary measures that appear on corporate financial statements (Burgstahler and Dichev, 1997; Ashton *et al.*, 2003). Burgstahler and Dichev (1997, p. 188) argue that these non-linearities arise out of two chief components comprising equity value. The

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first of these is called the recursion value of equity and is the expected present value of the stream of future dividends computed under the assumption that the firm's 'current' investment opportunity set will remain in force indefinitely. However, Burgstahler and Dichev (p. 188) identify a second component of equity value; namely, the real (or adaptation) value of equity. This is the option value that arises when the firm can alter its investment opportunity set by (for example) changing the nature of the capital projects in which it invests. Recent papers by Yee (2000), Tippett and Yilmaz (2002), Johnstone (2002), Ashton *et al.* (2003, 2004) and Ostaszewski (2004) develop some analytical properties of the equity valuation models that arise out of this distinction between recursion and real (adaptation) option value. As yet, however, these analytical models have had little impact on the procedures adopted by empirical researchers in the area. Hence, there is virtually no empirical evidence through which to assess whether this distinction between the recursion and adaptation values of equity is of any empirical significance.[1]

Such evidence as exists, however, is highly suggestive. Using U.S. data Burgstahler and Dichev (1997, p. 199) graph the relationship between the market to book ratio (for equity) and the earnings to book ratio (for equity) for over 45,000 firm-years covering the period from 1976 until 1994. The graph shows that the market to book ratio is a highly convex function of the earnings to book ratio. Burghstahler and Dichev argue (pp. 196–200) that this is compatible with the real options available to firms making a significant contribution to overall equity value. Likewise, Ashton *et al.* (2003, pp. 428–30) graph the relationship between the market to book ratio (for equity) and the earnings to book ratio (for equity) for over 12,000 U.K. firm-years covering the period from 1988 until 1998, and they too find that there is a highly convex relationship between these two variables. They go on to develop an aggregation theorem which shows that if real (adaptation) options are available to firms, then one would expect to see the kind of convex relationship between equity prices and earnings that one observes in practice. The Ashton *et al.* (2003) aggregation theorem also shows, however, that empirical estimation of this convex relationship between equity prices and earnings raises complex econometric issues—something that is confirmed by the mis-specification problems that arise when Burgstahler and Dichev (1997, pp. 200–9) attempt to fit both linear and hyperbolic regression models to their data.

Our approach differs from those employed in the past in that we demonstrate how the Ashton *et al.* (2003) aggregation theorem implies that the contribution which real (adaptation) options make to the overall value of equity hinges on a crucial risk parameter which governs the evolution of the recursion value of equity. Unfortunately, it is impossible to observe the recursion value of equity directly and this poses difficult problems for estimation of this risk parameter on which the evolution of recursion value depends. We show, however, that one can use an order statistic based on a sample of market to book ratios for a given firm or industry in conjunction with the aggregation theorem developed by Ashton *et al.* (2003) to obtain reliable estimates of this risk parameter. This allows one to disaggregate the overall market value of equity into estimates of its recursion value and real (adaptation) value components. Our analysis begins in the next section by briefly reviewing the prior empirical work that relates to our study. The section which follows after this outlines a fundamental assumption about the relationship between the book value of equity and its real (adaptation) value that was first proposed by Burghstahler and Dichev (1997, pp. 193–4) and which underscores most of our own empirical work. After that we combine this assumed relationship between book value and the real (adaptation) value of equity with the Ashton *et al.* (2003) aggregation theorem to state the valuation formula we use in our empirical analysis to disaggregate equity value into its estimated recursion and real (adaptation) value components. We then use a sample of market to book ratios taken from the U.K. Resources Industry to illustrate how one can use our valuation formula and an order statistic based on this sample of market to book ratios to estimate the risk parameter which governs the evolution of the recursion value of equity. The final procedural section goes on to apply these estimation procedures to much larger sample sizes drawn from four broad industry groupings. Estimates of the risk parameters for these four broad industry groupings are then used to disaggregate equity values into their estimated recursion value and real (adaptation) value components. Our paper concludes with summary comments.

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[1] Probably the most comprehensive piece of empirical analysis conducted on this issue is that of Berger *et al.* (1996). They find (p. 284) 'a positive and highly significant relation between [equity] market value and estimated exit [liquidation] value'. However, only linear models are employed in their paper; something that is (without exception) incompatible with the (non-linear) analytical models that have been developed in the area. Given this, their empirical procedures will almost certainly be afflicted by an omitted variables problem (Greene, 1997, pp. 402–4; Morel, 2003, p. 1346) and so, one must be cautious about interpreting the results they report.

PRIOR LITERATURE

The seminal analysis of Ohlson (1995) is the conventional starting point for examining the relationship between the market value of a firm's equity and the book or accounting figures which appear on its financial statements. The Ohlson valuation model is based on the assumption that the market value of a firm's equity can be expressed in terms of a given set of 'information variables'. These information variables normally include the firm's accounting earnings, the book value of its equity and a variable which captures all other value relevant information not immediately reflected in the firm's accounting records. Custom has it that these information variables evolve in terms of a first order system of stochastic difference equations which when augmented by the clean surplus identity (Ohlson, 1995, p. 668) can be solved to determine the stream of future dividends the firm is expected to pay. One can then discount this stream of expected future dividends at the appropriate cost of capital and thereby determine the expected market value of the firm's equity, $\eta(t)$, as follows (Ohlson, 1995, p. 669):

$$\eta(t) = \beta_1 b(t) + \beta_2 x(t) + \beta_3 \nu(t)$$

where $x(t)$ is the accounting earnings over the t^{th} period,
$b(t)$ is the book value of equity at time t,
$\nu(t)$ is the variable that captures all other value relevant information not immediately reflected in the firm's accounting records, and
β_1, β_2 and β_3 are the 'valuation coefficients' associated with each of these variables.

Lundholm (1995, p. 749) describes the Ohlson (1995) model as one of the 'landmark works in financial accounting' while Bernard (1995, p. 733) says that it is one of the 'most important developments in capital markets research in the last several years'. Given this, it is somewhat surprising that the Ohlson (1995) model has received such meagre attention from empirical researchers when compared to other path-breaking valuation models in the accounting and finance literature. Here, Dechow *et al.* (1999) and Myers (1999) are probably the most commonly cited authors dealing with the empirical validity (or otherwise) of the Ohlson (1995) model, although Morel (2003) suggests that both these articles are replete with methodological inconsistencies.

Dechow *et al.* (1999) summarize the results of a U.S. study that employs in excess of 50,000 firm-years of financial statement and analyst forecast data in conjunction with the corresponding equity prices covering the period 1976–95. The analyst forecast data are the 'one year ahead consensus analyst forecast of abnormal earnings' which are used as a proxy for the information variable, $\nu(t)$. Annual earnings figures, $x(t)$, and the book value of equity, $b(t)$, are extracted from the COMPUSTAT database whilst equity prices are drawn from the CRSP file. They use these data to estimate the relevant parameters of the first order system of stochastic difference equations that describes the evolution of the information variables, $b(t)$, $x(t)$ and $\nu(t)$ under the Ohlson (1995) model. These parameters are then used to determine the valuation coefficients, β_1, β_2 and β_3, defined earlier, and thus the value of equity, $\eta(t)$, as implied by the Ohlson model. Dechow *et al.* (1999, pp. 22–4) find that, on average, the Ohlson estimate of equity value, $\eta(t)$, is at least 20 per cent below the observed market price of the given equity security (depending upon the particular interpretation of the Ohlson model employed). They suggest (p. 32) that the 'ambiguous empirical support' they find for the Ohlson model probably stems from a combination of two factors. The first (p. 25) is that there is a fundamental 'misspecification in Ohlson's valuation model. An alternative interpretation is that stock prices do not reflect rational expectations because investors overestimate the persistence of abnormal earnings.'

Myers (1999, p. 8) introduces his study with the observation that while the information variable, $\nu(t)$, is a crucial variable in the Ohlson (1995) equity valuation model, the Ohlson linear information dynamics 'do not specify what the $\nu(t)$ is and [furthermore] it is not possible to explicitly control for all possible [interpretations of] $\nu(t)$'. Myers, however, seeks to address this problem by incorporating several other variables into the Ohlson linear information dynamics which, he argues, ought to hold valuation relevance. The first of these is based on the observation (p. 8) that 'conservative accounting systematically understates the valuation of operating assets' and this, in turn, 'reduces the benchmark [implied by the accounting system for the firm's expected or] normal earnings'. Myers (pp. 9–10) seeks to address this issue by augmenting the Ohlson linear information dynamics with the annual capital investment expenditure made by the firm. However, he also notes (p. 11) that 'new long-lived contracts and order backlogs' can also have an impact on future earnings and so, he empirically tests a second interpretation of the Ohlson model under which the linear information dynamics are augmented with an order or backlog variable. The Myers (1999) testing procedures are again based on U.S. data—in this instance 44,980 firm-years covering 1975–96 inclusive. Unfortunately, Myers (p. 26) finds that his empirical analysis 'suggests that the linear information dynamics . . . do[es] not capture aspects of the market valuation process very well'. The Ohlson model estimate of equity value, $\eta(t)$, is again typically 80 per cent or less of the observed market price of the given equity security.

In an insightful paper Morel (2003, p. 1342) argues that virtually all the empirical work conducted in this area is flawed because of serious methodological errors. She notes, for example, that the Dechow *et al.* (1999, p. 14) empirical analysis assumes an inter-temporally constant cost of equity capital across all firms employed in their empirical analysis (typically 12 per cent per annum). Morel (p. 1342) notes, however, that Fama and French (1997) amongst others have demonstrated empirically that the cost of equity capital hinges on firm size and also varies stochastically over time. Ignoring these factors induces an errors in variables problem into the Dechow *et al.* (1999) regression procedures and this can induce biases in the estimated valuation coefficients (β_1, β_2 and β_3) associated with the Ohlson (1995) valuation model. Myers (1999, p. 15) seeks to address this issue by estimating each firm's cost of equity using the Fama and French three-factor model. Morel (p. 1344) notes, however, that the difficulty here is that a firm's value and its cost of capital are not independent 'constructs' and must be estimated simultaneously if parameter estimation is to be efficient and consistent. Other issues are raised by Morel, such as the effect of non-stationarity on the efficiency of parameter estimation in the time series models used by Myers (1999). However, the important point here is that even when Morel (p. 1358) makes corrections for these (and other) methodological issues in her own empirical work, it still turns out that her empirical results show 'that the Ohlson (1995) model is empirically problematic'.

It is because of this that our contribution takes an entirely different approach to this issue of the empirical validity (or otherwise) of the Ohlson (1995) equity valuation model. Specifically, our analysis is based on the observation that recent developments in investment theory show that the expected present value rule (on which the Ohlson model is founded) assumes a fixed scenario under which firms implement their investment opportunities and then go on to generate a stream of cash flows without any intervening contingencies. Thus contingencies, like a firm's ability to modify or even abandon its existing investment opportunity set in the face of unfavourable market conditions, have no role to play when investment decisions and, by implication, equity value are based exclusively on the expected present value rule (Ashton *et al.*, 2004). Yet a firm's ability to adapt its investment opportunity set to alternative uses represents a potentially valuable option that will be reflected in the market value of its equity, and this will be over and above the value that emanates from discounting the stream of future dividends it expects to pay (Dixit and Pindyck, 1994; Trigeorgis, 1996; Holthausen and Watts, 2001, p. 60). Hence, our principal objective here is to report the results we obtained from applying the Ashton *et al.* (2003) aggregation theorem to obtain estimates of the contribution these real (adaptation) options make towards the overall market value of corporate equity. Before doing so, however, we outline a fundamental assumption that underpins our empirical analysis that was first proposed by Burghstahler and Dichev (1997, pp. 193–4). This concerns the relationship between the book value of equity and the option value that arises when the firm has the potential to alter its investment opportunity set.

BOOK VALUE, IMPAIRMENT TESTING AND REAL (ADAPTATION) VALUE

Our empirical procedures are based on a fundamental assumption of Burgstahler and Dichev (1997, p. 194) that in times of extreme financial distress firms will have the option of terminating their operating activities and discharging their liabilities by liquidating the assets on which their operating activities depend. Here, Burgstahler and Dichev (p. 194) argue that, at acquisition, the book value of an asset is similar or identical to its realizable (or adaptation) value. Furthermore, subsequent to acquisition an asset's 'book value is also likely to be closely related to [its] adaptation value, although the two may diverge if the various adjustments of the accounting system (e.g. depreciation) do not accurately reflect the changes in adaptation value' (Willett, 1991). They go on to note that because of this, the real (adaptation) value of equity must also be 'closely related' to the book value of equity.[2] Support for this position is to be found in the numerous 'impairment tests' that have been incorporated into accounting standards and corporate disclosure legislation throughout the industrialized world. In the U.K., for example, paragraphs 17, 22 and 31 of the Fourth Schedule of the Companies Act 1985 provide that tangible fixed assets must be carried in a company's books at their purchase price, production cost or their (current) market value. Furthermore, the Accounting Standards Board's FRS 15, *Tangible Fixed Assets*, requires that where an enterprise chooses to adopt a policy of revaluing some assets, all assets of the same class (that is, those with a similar nature, function or use) must also be revalued. When, however, a tangible fixed asset's 'recoverable amount' has fallen below its book value, then paragraphs 19(2) and 32(2) of the Fourth

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[2] Burgstahler and Dichev (1997) are not alone in suggesting that the book value of equity is a reasonable proxy for the firm's abandonment or adaptation value. Collins *et al.* (1999, p. 32), for example, note that 'in the event of liquidation, book value is a natural proxy for liquidation value'. Likewise, Subramanyam and Venkatachalam (1998, p. 19) summarize prior empirical work by suggesting 'it is likely that book value serves as a proxy for the liquidation or abandonment value'. Last but not least, Hayn (1995, pp. 150–1) estimates the market value of a firm's assets 'by adding the book value of current and intangible assets to an approximation of the market value of noncurrent operating assets'. The approximation of the market value for the noncurrent assets is obtained by 'adjusting the book value of these assets for inflation that has occurred since their purchase'.

Schedule of the Companies Act taken in conjunction with FRS 11, *Impairment of Fixed Assets and Goodwill*, require that the asset(s) must be written down to their current recoverable amount.[3] The recoverable amount is defined as the higher of the amount that could be obtained by selling the asset (its net realizable value) and the amount that could be obtained through using the asset (its value in use). Value in use is computed by forecasting the cash flows which the asset is expected to generate and discounting them back to their present value. Where individual assets do not generate independent cash flows, a group of assets (an income-generating unit) is tested for impairment instead.

Similar provisions apply to other assets carried on corporate balance sheets. FRS 10, *Goodwill and Intangible Assets*, for example, requires that (purchased) goodwill and certain other assets should be capitalized on acquisition and then be amortized systematically through the profit and loss account (usually over twenty years or less). However, impairment reviews must also be undertaken for both classes of assets, especially if the goodwill or intangible asset is regarded as having an infinite life and is therefore not being amortized. Likewise, paragraph 22 of the Fourth Schedule of the Companies Act requires that the amount to be included on the balance sheet in respect of any current asset must be its purchase price or production cost determined in the same way as for fixed assets. However, current assets are also subject to an impairment test and paragraph 23(1) of the Fourth Schedule requires that where the net realizable value of any current asset is lower than its purchase price or production cost, then it too must be written down to its net realizable value. Similarly, paragraph 45(2) of the Fourth Schedule provides that a company must disclose the aggregate market value of investments listed on a prescribed stock exchange when this market value differs from the amount at which the investments are carried on the company's balance sheet. Investments, too, are subject to impairment testing under FRS 11, *Impairment of Fixed Assets and Goodwill*, and the valuation provisions of the Fourth Schedule of the Companies Act previously referred to.

These impairment tests required under the Companies Act and U.K. Accounting Standards provide a strong justification for invoking the Burgstahler and Dichev (1997) assumption that the real (adaptation) value of equity will be 'closely related' to its book value in instances where the recursion value of equity is artificially low. Given this, the next section presents an equity pricing formula based on the market to book ratio of equity which incorporates this assumption that the book value of equity will be closely aligned to the real (adaptation) value of equity when the recursion value of equity falls to artificially low levels.

MARKET TO BOOK RATIO AND EQUITY PRICING

Our analysis assumes that the recursion value of equity evolves in terms of an Ashton *et al.* (2003) 'square root' process and thus takes the form:

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[3] The development of FRS 11, *Impairment of Fixed Assets and Goodwill*, shadows the development of the international standard on the same subject; namely, IAS 36, *Impairment of Assets*.

$$d\eta(t) = i\eta(t)dt + \sqrt{\eta(t)} \cdot dq(t)$$

where $\eta(t)$, is the expected present value of the future stream of dividends at time t (computed under the assumption that the firm's existing investment opportunity set remains in force indefinitely),
$d\eta(t) = \eta(t + dt) - \eta(t)$ is the instantaneous increment in the expected present value of the future stream of dividends,
i is the cost of equity capital (per unit time), and
$dq(t)$ is a Wiener process with a variance parameter of ζ.[4]

Unlike many other models in the area, this square root model makes the (realistic) assumption that the variance of increments in recursion value depends on the current level of the recursion value itself and thus instantaneous increments in recursion value will have an heteroscedastic variance. Further assumptions enable Ashton *et al.* (2003) to determine the real (adaptation) value of equity, $\kappa(\eta)$, when the recursion value of equity evolves in terms of the above square root process, namely:

$$\kappa(\eta(t)) = \frac{1}{2}\int_{-1}^{1} \exp\left(\frac{-2\theta\eta(t)}{1+z}\right)dz$$

where $\theta = 2i/\zeta$ is the crucial 'risk parameter' on which this option value depends, and $\kappa(0) = 1$ is the (normalized) adaptation value of equity when the recursion value of equity falls away to nothing.

Note that when θ is 'large' (or equivalently the variance parameter, ζ, is 'small' relative to the cost of equity capital, i), the real (adaptation) value of equity will be relatively 'small'. This reflects the fact that there is relative certainty about the evolution of recursion value and so there is only a small probability that the firm will have to exercise its real (adaptation) options. These options can only have a small value as a consequence. When, however, θ is 'small' (or ζ is 'large' relative to i), the adaptation value of equity will be relatively 'large'. This reflects the fact that there is considerable uncertainty about the evolution of recursion value and so there is a significant probability that the firm will have to exercise its real (adaptation) options. This in turn implies that the adaptation options will have considerable value to the firm.

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[4] The 'square root' stochastic differential equation given here possesses the following 'weak form' solution (Yu and Phillips, 2001, pp. 6–7):

$$\eta(t) = \eta(0)e^{it} + \int_0^t e^{i(t-s)}\sqrt{\eta(s)}\,dq(s)$$

Taking expectations across this solution shows $E_0[\eta(t)] = \eta(0)e^{it}$ where $E_0(\cdot)$ is the expectations operator taken at time zero. Thus, under this square root process we can expect the recursion value of equity to grow at a rate equal to the cost of the firm's equity capital, i. This is consistent with the growth models introduced into the accounting and finance literature by Gordon (1962) and more recently by Feltham and Ohlson (1995, 1996) and Zhang (2000) amongst others.

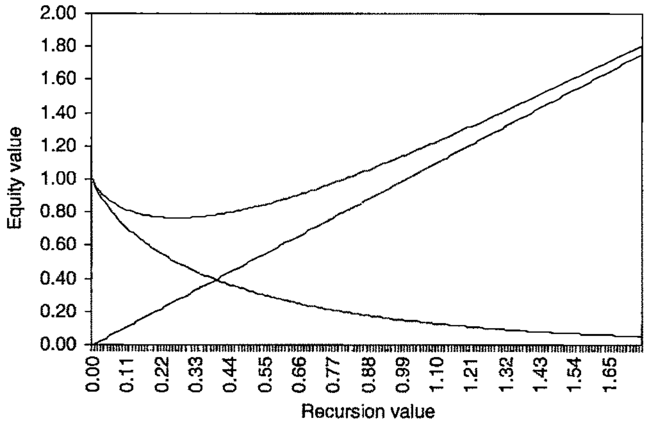
Combining the recursion and real (adaptation) values means that the (normalized) market value of the firm's equity, $P(\eta)$, turns out to be:

$$P((\eta(t)) = \eta(t) + \frac{1}{2}\int_{-1}^{1}\exp\left(\frac{-2\theta\eta(t)}{1+z}\right)dz$$

Now, it is important that we draw out several key properties of this valuation formula. The first of these relates to the fact that it is not possible to uniquely disaggregate a firm's equity value into its recursion and adaptation components when its market to book ratio lies between zero and unity, something we can demonstrate through the following simple example. Suppose we graph the above equity valuation formula under the specification $\theta = 1$. The results of this exercise are to be found in Figure 1. Note that when the market to book ratio is $P(\eta) = 1$

Figure 1

DIVISION OF THE MARKET VALUE OF EQUITY BETWEEN RECURSION AND REAL (ADAPTATION) COMPONENTS WITH A RISK PARAMETER OF $\theta = 1$



The downward sloping curve in the above graph is the real (adaptation) value of equity ($\kappa(\eta)$); namely:

$$\eta\int_{\eta}^{\infty}\frac{e^{-\theta y}}{y^2}dy = \frac{1}{2}\int_{-1}^{1}\exp\left(\frac{-2\theta\eta}{1+z}\right)dz$$

The upward sloping line is the recursion value of equity, η. The convex upward sloping curve is the overall value of equity which is the sum of its recursion value and its real (adaptation) value ($P(\eta) = \eta + \kappa(\eta)$), or:

$$P(\eta) = \eta + \frac{1}{2}\int_{-1}^{1}\exp\left(\frac{-2\theta\eta}{1+z}\right)dz$$

The integrals in the above expressions were estimated using 15 point Gauss-Legendre quadrature (Carnahan *et al.* 1969, pp. 101–15).

there are two possibilities for the way in which the market value of equity will disaggregate into its recursion and real (adaptation) value components. The first of these would have the (normalized) market value of equity to be entirely composed of real (adaptation) value in which case future dividends contribute nothing towards the value of the firm's equity. However, one can draw a perpendicular line across from this first solution that shows there is a second way of splitting the recursion and real (adaptation) values so that they return an overall equity value of unity. Using some standard numerical procedures (Carnahan *et al.*, 1969, pp. 319–20) it is not hard to show that this second solution has a recursion value of $\eta = 0.7988$, and this in turn implies a real (adaptation) value of equity of $\kappa(0.7988) = {}^1\!/\!_2\int_{-1}^{1}\exp\{-2 \times 0.7988/(1 + z))dz = 0.2012$. Bringing these results together shows that the overall value of equity is $P(0.7988) = 0.7988 + 0.2012 = 1$; or unity as well. The reader can confirm by visual inspection of Figure 1 that the non-uniqueness of the split between the recursion and real (adaptation) values of equity will arise whenever the market to book ratio lies between zero and unity. Here it is important to note that Ashton *et al.* (2003, 2004) show that there will always be an interval around the origin where the real (adaptation) value of equity declines at a faster rate than the recursion value of equity increases and this induces a 'smirk' in the relationship between the overall value of equity and its recursion value. The exact width of this smirk depends on the magnitude of the risk parameter, θ; the smirk is more pronounced for larger values of θ than it is for smaller values of this parameter. Furthermore, Ashton *et al.* (2003) find support for the existence of such a smirk in the prior empirical work summarized in the U.S. and U.K. literature of the area. The Appendix contains some further empirical evidence on both this smirk phenomenon and some other non-linearity issues that rise in this area.

A second important issue stems from the fact that one needs a reliable estimate of the risk parameter, $\theta = 2i/\zeta$, if one is to apply the Ashton *et al.* (2003) model in practice. Unfortunately, it is impossible to observe the recursion value of equity directly and so, this makes it particularly difficult to estimate the variance parameter, ζ, associated with the evolution of the recursion value. This, in turn, creates serious obstacles for estimating the risk parameter, θ, itself. Here, however, one can estimate θ using the smirk characteristic identified earlier in conjunction with an order statistic based on a sample of market to book ratios for a given firm or industry. To illustrate the procedures involved, suppose a random sample of size n is drawn from a population of market to book ratios, x, described by the continuous density function $f(x)$. Furthermore, let the sample of market to book ratios be arranged in an increasing order of magnitude. Write x_1 for the smallest market to book ratio in the sample, x_2 for the next smallest market to book ratio and so on right up until x_n which is the largest market to book ratio in the sample. It then follows that $u = \int_{x_1}^{\infty} f(x)\mathrm{d}x$ is the proportion of the population of market to book ratios that lie above the smallest element, x_1, in our sample. Now, one can use the procedures outlined in the seminal monograph of Wilks (1948) to show that the distribution function of the proportion of the population of market to book ratios falling above the smallest market to book ratio in our sample will be:

$$G(u) = 1 - u^n$$

where, obviously, we must have $0 \le u = \int_{x_1}^{\infty} f(x)\mathrm{d}x \le 1$.

Now, suppose we want to be 'almost certain' that the smallest observation in our sample of market to book ratios is 'very close' to the smallest observation for the population of market to book ratios as a whole. Given this, we can use the minimum observation from an ordered sample of market to book ratios for a 'large' sample, n, as the basis for estimating the risk parameter, θ.[5]

To illustrate the procedures involved, suppose the minimum element for a sample of market to book ratios in a given industry grouping turns out to be $P(\eta) = \alpha > 0$. Then the first requirement for our estimation procedure is that our valuation formula must be compatible with this market to book ratio, or:

$$\eta + \frac{1}{2}\int_{-1}^{1} \exp\left(\frac{-2\theta\eta}{1+z}\right)\mathrm{d}z = \alpha$$

There is, however, a second requirement and this is that the equity valuation formula must attain its (global) minimum value at $P(\eta) = \alpha$. Given this, we differentiate the above expression under the integral sign (with respect to η) and thereby derive this second requirement that our valuation formula will have to satisfy; namely:

$$\int_{-1}^{1} \frac{\exp\left(\frac{-2\theta\eta}{1+z}\right)}{1+z}\mathrm{d}z = \frac{1}{\theta}$$

These two conditions are sufficient to determine the recursion value, η, the real (adaptation) value of equity, $\kappa(\eta)$, and the risk parameter, θ, that are compatible with the minimum market to book ratio obtained for a given firm or industry; something that we now illustrate in terms of a simple numerical example.

Consider Table 1, which summarizes an ordered sequence of eighty-six market to book ratios taken from the U.K. Resources Industry. For each of the eighty-six firms identified in this table, 262 daily market to book ratios covering the year ended 30 June 2004 were extracted from the Datastream system (Datastream identity code PTBV). The simple average of these 262 daily market to book ratios was then computed for each firm and it is these average market to book ratios that are summarized in Table 1. Now, the first three of these average market to book ratios are negative and since the real (adaptation) options available to a firm cannot have a negative value, they are taken as outliers and excluded from

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[5] If the sample size, n, is 'large' then $G(u) = 1 - u^n$ will have a numerical value which is close to unity and this means that virtually all the probability density of the market to book ratio (for equity) falls above the smallest element in the sample of market to book ratios. This, in turn, means that the smallest market to book ratio in the sample will be 'very close' to the smallest market to book ratio for the population as a whole.

TABLE 1

AVERAGE MARKET TO BOOK RATIOS FOR RESOURCES FIRMS BASED ON THE MARKET AND BOOK VALUES OF EQUITY FOR 262 DAILY OBSERVATIONS TAKEN OVER THE YEAR ENDING 30 JUNE 2004

#	Firm name	Market to book ratio	#	Firm name	Market to book ratio
1	Northern Petroleum	−21.04	23	Eurasia Mining	1.62
2	Water Hall Group	−12.96	24	Trans Siberian Gold	1.71
3	Anglesey Mining	−2.62	25	Patagonia Gold	1.71
4	Tiger Resource Fin	0.59	26	Sterling Energy	1.73
5	Conroy Diamonds & Gold	0.60	27	Bullion Resources	1.74
6	Global Energy Dev (Regs)	0.60	28	Venture Production	1.74
7	Palmaris Capital	0.73	29	Premier Oil	1.75
8	Bisichi Mining	0.80	30	Soco International	1.77
9	U.K. Coal	0.86	31	Hidefield Gold	1.89
10	Anglo Pacific Group	0.90	32	Zincox Resources	1.89
11	Galahad Gold	0.91	33	Cambridge Mineral Resources	1.90
12	KBC Advanced Techs	0.97	34	Abbot Group	2.05
13	Hunting	1.04	35	JKX Oil and Gas	2.12
14	Alkane Energy	1.05	36	Griffin Mining	2.13
15	Xstrata	1.10	37	Paladin Resources	2.21
16	Pan Andean Resources	1.13	38	Melrose Resources	2.28
17	Dana Petroleum	1.22	39	Shell Transport and Trading	2.28
18	Ridge Mining	1.25	40	British Petroleum	2.35
19	Faroe Petroleum	1.26	41	Marakand Minerals	2.41
20	Greenwich Resources	1.46	42	Celtic Resources Holdings	2.42
21	Firestone Diamonds	1.50	43	Wood Group (John)	2.44
22	Anglo American	1.60	44	European Diamonds	2.46

Table 1

(continued)

#	Firm name	Market to book ratio	#	Firm name	Market to book ratio
45	Expro International	2.50	66	Lonmin	3.76
46	Sondex	2.53	67	Antofagasta	3.82
47	Sibir Energy	2.59	68	Minco	3.93
48	Avocet Mining	2.60	69	Westmount Energy	4.07
49	GTL Resources	2.70	70	Peter Hambro Mining	4.12
50	BG Group	2.71	71	Fortune Oil	4.14
51	Tertiary Minerals	2.75	72	Central African Mining and Exploration	4.45
52	African Eagle Resources	2.83	73	African Gold	5.17
53	Burren Energy	2.83	74	Tecteont	5.46
54	Emerald Energy	2.91	75	GMA Resources	5.67
55	Tullow Oil	3.04	76	Oxus Gold	5.98
56	Cairn Energy	3.12	77	Pan African Resources	6.37
57	Edinburgh Oil and Gas	3.19	78	Regal Petroleum	6.39
58	Texas Oil and Gas	3.22	79	Highland Gold Mining	6.59
59	Rio Tinto	3.38	80	Jubilee Platinum	7.15
60	Hereward Ventures	3.40	81	Ramco Energy	7.93
61	BLK Rock Oil and Gas	3.62	82	Desire Petroleum	8.89
62	Randgold Resources	3.65	83	Petrel Resources	10.31
63	Angus and Ross	3.67	84	Chaco Resources	18.16
64	Monterrico Metals	3.68	85	MOS International	96.29
65	BHP Billiton	3.71	86	Petra Diamonds	145.05

further analysis.[6] This leaves a net sample of $n = 86 - 3 = 83$ market to book ratios with a minimum (positive) market to book ratio of 0.5947. It is this minimum market to book ratio upon which our estimate of the risk parameter for the Resources Industry is based. Here, the first requirement for our estimation procedure is that our equity valuation formula must be compatible with the designated minimum market to book ratio, or:

$$\eta + \frac{1}{2}\int_{-1}^{1} \exp\left(\frac{-2\theta\eta}{1-z}\right) dz = 0.5947$$

Second, we must also have that the equity valuation formula reaches a minimum at this point, or:

$$\int_{-1}^{1} \frac{\exp\left(\frac{-2\theta\eta}{1+z}\right)}{1+z} dz = \frac{1}{\theta}$$

One can solve this system of equations numerically (Carnahan *et al.*, 1969, pp. 319–20), in which case it follows that $\eta = 0.2751$ and $\theta = 1.8639$ are the values that uniquely satisfy our estimation criteria. Furthermore, one can use these results to compute the real (adaptation) value of equity for the firm with the minimum market to book ratio in the sample, or:

$$\kappa(0.2751) = \frac{1}{2}\int_{-1}^{1} \exp\left(\frac{-2 \times 1.8639 \times 0.2751}{1+z}\right) dz = 0.3196$$

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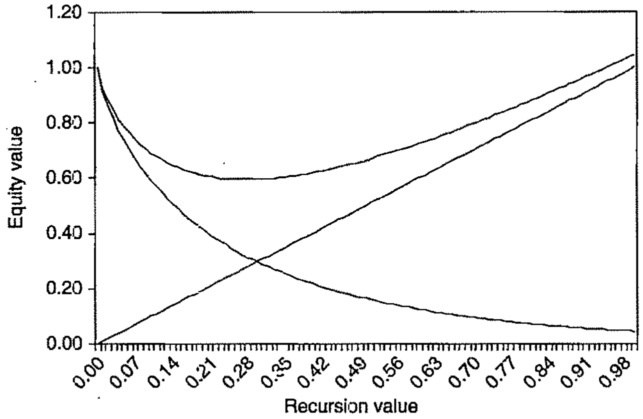
[6] The Resources Industry is typical of the other industries on which our empirical analysis is based in that there is a large 'discontinuity' in the market to book ratio at the origin. A further example of this is provided by the first few ordered market to book ratios for the U.K. Non-Cyclical Services Industry which are –5.45, –4.72, 0.50, 0.70, 0.79 and 0.88. Likewise, for the U.K. Utilities Industry the first few ordered market to book ratios are –23.20, –22.18, 0.50, 0.72 and 0.93. The market to book ratios for these industries were all computed over the year ended 30 June 2004 and use the same computation procedures as those applied in determining the market to book ratios for the Resources Industry. Hayn (1995, p. 132) suggests that this discontinuity phenomenon might arise because firms with a slightly negative equity book value manipulate their accounting procedures in order to 'cross the "red line" for the year'—that is, make the book value of equity slightly positive. There are some very powerful incentives for firms with negative book values to do this. The U.K. Insolvency Act, 1986 and the Company Directors Disqualification Act, 1986 jointly provide that if directors knowingly allow a company to trade while in an insolvent condition then they can be found personally liable for any losses that accrue during the period of insolvent trading. The Company Directors Disqualification Act also provides that directors who infringe these provisions may be disqualified from acting as directors for a period of up to fifteen years. The danger this potential manipulation procedure carries for our empirical procedures is obvious. However, the minimum book to market ratio on which the estimate of the risk parameter, θ, so crucially depends may be a manipulated figure and as such may carry little in the way of economic significance. As we note in a subsequent section, however, the disaggregation of equity value into its recursion and real (adaptation) value components appears to be fairly insensitive to large changes in the risk parameter used in the calculation.

FIGURE 2

RESOURCES INDUSTRY: DIVISION OF THE MARKET VALUE OF EQUITY BETWEEN RECURSION AND REAL (ADAPTATION) COMPONENTS WITH A RISK PARAMETER OF $\theta = 1.8639$



The downward sloping curve in the above graph is the real (adaptation) value of equity, $\kappa(\eta)$. The upward sloping line is the recursion value of equity, η. The convex upward sloping curve is the overall value of equity which is the sum of its recursion value and its real (adaptation) value, $P(\eta) = \eta + \kappa(\eta)$.

Adding the recursion value of equity to the real (adaptation) value shows the overall market value of equity will have to be $P(0.2751) = 0.2751 + 0.3196 = 0.5947$, as required.

The estimate obtained for the risk parameter also enables one to disaggregate a firm's equity value into its recursion and adaptation components for other values of the market to book ratio. Given this, we divide equity value between its recursion and real (adaptation) components when $\theta = 1.8639$ and summarize the results in Figure 2 for firms in the Resources Industry. Note that this graph shows that as the market to book ratio becomes larger the proportionate contribution that real (adaptation) options make to overall equity value, progressively declines. Thus, for example, when the market to book ratio is unity, Figure 2 shows that the recursion value of equity will be $\eta = 0.9491$ while the real (adaptation) value of equity amounts to $\kappa(0.9491) = 0.0509$. This means that when the market to book ratio is unity, real (adaptation) value accounts for around 5 per cent of the overall market value of the firm's equity. This compares with the $0.3196/0.5947 \approx 53.74\%$ contribution that these real (adaptation) options make to overall equity value when the market to book ratio assumes its minimum value of 0.5947.

The estimation procedure we have applied to the Resources Industry is based on a sample of only $n = 83$ market to book ratios. Given this, the probability of at least $u = \int_{x_1}^{\infty} f(x)\mathrm{d}x = 99\%$ of the population of market to book ratios being greater than the smallest observation in our sample of market to book ratios is only $G(0.99) = 1 - (0.99)^{83} \approx 0.5658$ or 56.58%. This means that there is a significant probability (of $1 - 0.5658 = 0.4342$ or 43.42%) that less than 99% of the population of market to book ratios will lie above the smallest observation in our sample of market to book ratios. This, in turn, has serious implications for the estimation of the risk parameter, θ, based as it is on estimates of the smallest possible market to book ratio in the population of market to book ratios for a particular firm or industry grouping. In order to have reasonable confidence that the minimum market to book ratio in our sample of market to book ratios will be close to the minimum market to book ratio for the population of market to book ratios as a whole, a sample much bigger than that employed in our Resources Industry example will have to be used. Given this, the empirical procedures which follow are based on four broad industry groupings with sample sizes which vary from $n = 237$ for the smallest industry grouping up to $n = 433$ for the largest industry grouping. With a sample of $n = 237$ observations one can insure that the probability of at least 99 per cent of the population of market to book ratios being greater than the smallest observation in the sample of market to book ratios will be $G(0.99) = 1 - (0.99)^{237} \approx 0.9076$ or about 91 per cent. Likewise, with a sample of $n = 433$ observations one can insure that the probability of at least 99 per cent of the population of market to book ratios being greater than the smallest observation in the sample of market to book ratios will be $G(0.99) = 1 - (0.99)^{433} \approx 0.9871$, or close to 99 per cent.[7]

DATA AND EMPIRICAL PROCEDURES

The data on which our empirical analysis is based are taken from the industrial classifications summarized in Table 2. This table shows, for example, that for the cyclical consumer industry the gross sample size consists of seventy-three market to book ratios. The first eight (ordered) observations from this sample are –1.82 for the Collins and Hayes Group, –1.32 for Razorback Vehicles, –0.85 for Dinkie Heel, –0.40 for Royal Doulton, –0.19 for the Airbath Group, 0.30 for Loades, 0.35 for Stoddard and 0.39 for Toye.[8] Now, the first five of these market to book ratios are negative and since the real (adaptation) options available to firms cannot have a negative value, they are taken as outliers and excluded from further analysis.

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[7] It can be shown that the *expected* proportion of the population of market to book ratios that lie above the smallest element of the sample of market to book ratios, will be $E(u) = n/(n+1)$. Thus for a sample consisting of $n = 237$ market to book ratios, one would expect $E(u) = 237/238 \approx 99.58\%$ of the population of market to book ratios to have values in excess of the smallest element in the sample. Likewise, for a sample consisting of $n = 433$ market to book ratios, one would expect $E(u) = 433/434 \approx 99.77\%$ of the population of market to book ratios to have values in excess of the smallest element in the sample.

[8] In line with our earlier analysis of the Resources Industry, each market to book ratio is based on the 262 daily market to book ratios covering the year ended 30 June 2004 (Datastream identity code PTBV). The simple average of these 262 daily market to book ratios was then computed for each firm and it is these average market to book ratios that are reported here for each of the seventy-three firms comprising the Cyclical Consumer Industry.

TABLE 2

SAMPLE SIZES AND INDUSTRIAL CLASSIFICATIONS EMPLOYED IN EMPIRICAL WORK

	Sample size	Excluded observations	Net sample size
Basic Industries	101	4	97
Cyclical Consumer	73	5	68
Cyclical Services	488	55	433
Financials	258	22	236
General Industrials	129	7	122
Information Technology	174	29	145
Non-Cyclical Consumer	143	5	138
Non-Cyclical Services	36	2	34
Resources	86	3	83
Utilities	20	2	18
Totals	1,508	134	1,374

This leaves a net sample of $n = 73 - 5 = 68$ market to book ratios with a minimum market to book ratio of 0.30. Similar calculations show that the General Industrials classification has a gross sample size of 129 market to book ratios but that seven of these market to book ratios are negative. This leaves a net sample size for the General Industrials classification of $n = 129 - 7 = 122$ observations with a minimum market to book ratio of 0.37. The figures for the other industrial classifications can be similarly interpreted.

Now, previously it was noted that our estimation procedures must be based on relatively large sample sizes if they are to return reliable estimates of the risk parameter, θ. Here, Cyclical Services with $n = 433$ observations of the market to book ratio is the only industrial classification possessing a large enough sample size to apply the estimation procedure in its own right. In other words, the sample sizes associated with the remaining industrial classifications are too small for reliable application of our estimation procedure. Given this, we combine these remaining industrial classifications into broader industrial groupings in order to achieve sample sizes that will lead to dependable estimates of the risk parameter, θ. This 'grouping procedure' was implemented using the non-parametric Kruskal-Wallis test to determine the industrial classifications with compatible distribution functions of the market to book ratio (Conover, 1971, pp. 256–63). Combining the Information Technology, the Non-Cyclical Consumer, the Non-Cyclical Services and the Resources industrial classifications, for example, returns a Kruskal-Wallis test statistic of $T = 0.40$. Under the null hypothesis that the distribution functions for all $k = 4$ industrial classifications are the same, the Kruskal-Wallis test statistic, T, is asymptotically distributed as a Chi-square variate with $k - 1 = 4 - 1 = 3$ degrees of freedom. This means that our test statistic of $T = 0.40$ is far from significant at any reasonable level of significance. Thus, one can accept the null hypothesis that the distribution functions for the Information Technology, the Non-Cyclical Consumer, the Non-Cyclical Services and the Resources industrial classifications are the same. This in turn allows one to base the estimate of the risk parameter, θ, on a much broader industrial grouping comprised of $n = 145 + 138 + 34 + 83 = 400$ observations of the market to book ratio, thus improving the reliability of our estimate of the risk parameter, θ.

Similar procedures applied to the broad industrial grouping comprised of the Cyclical Consumer and Financials industry classifications returns a Kruskal-Wallis test statistic of $T = 1.34$ with $k - 1 = 2 - 1 = 1$ degree of freedom. Again this is not statistically significant at any reasonable level of significance and allows one to base the estimate of θ on a sample comprised of $n = 68 + 236 = 304$ observations of the market to book ratio. Finally, combining up the Basic Industries, General Industrials and Utilities industrial classifications returns (an insignificant) Kruskal-Wallis test statistic of $T = 1.864$ with $k - 1 = 3 - 1 = 2$ degrees of freedom. This, too, allows one to base the estimate of θ on a sample comprised of $n = 97 + 122 + 18 = 237$ observations of the market to book ratio.

Summary statistics relating to each of these four broad industry groupings are to be found in Table 3. The first column of data in this table gives the sample size (or the number of market to book ratios) on which our estimating procedures are based. Thus, for the Cyclical Services Industry, our estimation procedure is based on a sample of $n = 433$ observations. The second column in Table 3 contains the minimum market to book ratio for that industry grouping. Hence, the smallest market to book ratio for the Cyclical Services Industry is 0.26. The next five columns of the table summarize the percentiles of the distribution of the sample of market to book ratios for the given industry grouping. Thus, 10 per cent of the sample of market to book ratios for the Cyclical Services Industry are less than 0.80. Likewise, 30 per cent of the sample of market to book ratios for the Cyclical Services Industry are less than 1.38 and so on. The largest market to book ratio for the sample taken from the Cyclical Services Industry is 147.74 while the mean of the 433 market to book ratios comprising the sample is 4.64. Finally, the standard deviation (SD) of the 433 market to book ratios for the Cyclical Services Industry is 13.04. The summary statistics for the other three industry groupings appearing on the table are to be interpreted in the same way as those for the Cyclical Services Industry.

Using the procedures outlined in the previous section and the data summarized in Table 3 we estimated the risk parameters, θ, for each of the four broad industry groupings considered. The estimates of these risk parameters are summarized in Table 4. Thus, our estimate of the risk parameter for the Cyclical Services Industry is $\theta = 7.9737$. This estimate is based on a minimum market to book ratio of $P(\eta) = 0.2592$, which can be decomposed into a recursion value component of $\eta = 0.1693$ and a real (adaptation) component of $\kappa(0.1693) = \frac{1}{2}\int_{-1}^{1}\exp((-2 \times 7.9737 \times 0.1693)/(1 + z))dz = 0.0899$. This in turn means that the market value of equity is comprised $0.1693/0.2592 \approx 65.32\%$ of recursion value and $0.0899/0.2592 \approx 34.68\%$ of real (adaptation) value at this minimum market to

Table 3

DISTRIBUTION OF MARKET TO BOOK RATIOS FOR FOUR BROAD INDUSTRY GROUPINGS BASED ON THE MARKET AND BOOK VALUES OF EQUITY FOR THE YEAR ENDING 30 JUNE 2004

Industry grouping	Sample size	Smallest observation	Percentiles					Largest observation	Mean	*SD*
			10	30	50 (median)	70	90			
Cyclical Services	433	0.26	0.80	1.38	2.04	3.06	7.73	147.74	4.64	13.04
Information Technology, Non-Cyclical Consumer, Non-Cyclical Services and Resources	400	0.47	0.96	1.64	2.43	3.76	8.84	237.76	5.99	19.10
Cyclical Consumer and Financials	304	0.25	0.63	0.84	1.29	2.05	3.80	269.22	2.86	15.50
Basic Industries, General Industrials and Utilities	237	0.37	0.78	1.15	1.57	2.35	5.00	9,650.05	47.56	626.47

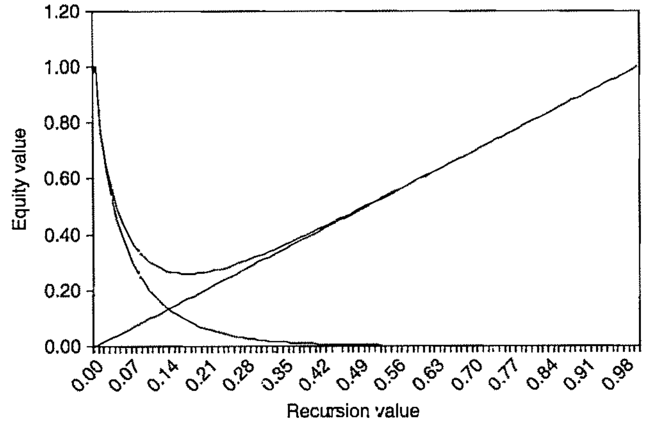
TABLE 4

ESTIMATED RISK PARAMETERS, θ, AND DIVISION OF EQUITY VALUE BETWEEN RECURSION AND REAL (ADAPTATION) COMPONENTS AT THE MIMIMUM MARKET TO BOOK RATIO FOR FOUR BROAD INDUSTRY GROUPINGS

Industry grouping	Minimum observation	Risk parameter (θ)	Recursion value (η)	Real (adaptation) value (κ(η))
Cyclical Services	0.2592	7.9737	0.1693	0.0899
Information Technology, Non-Cyclical Consumer, Non-Cyclical Services and Resources	0.4704	2.9619	0.2493	0.2211
Cyclical Consumer and Financials	0.2524	8.3093	0.1691	0.0833
Basic Industries, General Industrials and Utilities	0.3718	4.4787	0.2244	0.1474

FIGURE 3

CYCLICAL SERVICES INDUSTRY: DIVISION OF THE MARKET VALUE OF EQUITY BETWEEN RECURSION AND REAL (ADAPTATION) COMPONENTS WITH A RISK PARAMETER OF θ = 7.9737

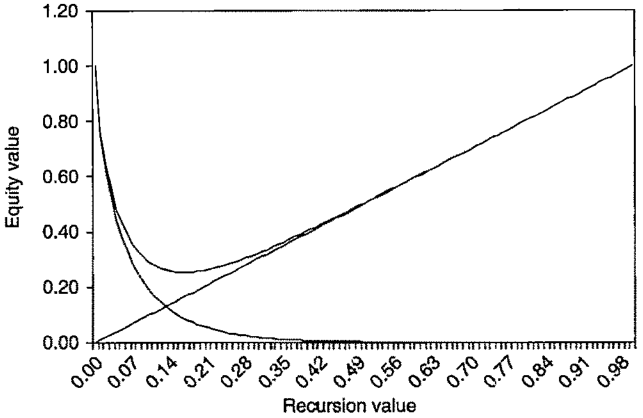


The downward sloping curve in the above graph is the real (adaptation) value of equity, κ(η). The upward sloping line is the recursion value of equity, η. The convex upward sloping curve is the overall value of equity which is the sum of its recursion value and its real (adaptation) value, $P(\eta) = \eta + \kappa(\eta)$.

book ratio. However, as the market to book ratio increases beyond this minimum value the proportionate contribution of real (adaptation) value towards the overall market value of equity gradually declines, something that can be gleaned from Figure 3. This figure shows that apart from very low values of the market to book

Figure 4

CYCLICAL CONSUMER AND FINANCIALS GROUPING: DIVISION OF THE MARKET VALUE OF EQUITY BETWEEN RECURSION AND REAL (ADAPTATION) COMPONENTS WITH A RISK PARAMETER OF $\theta = 8.3093$



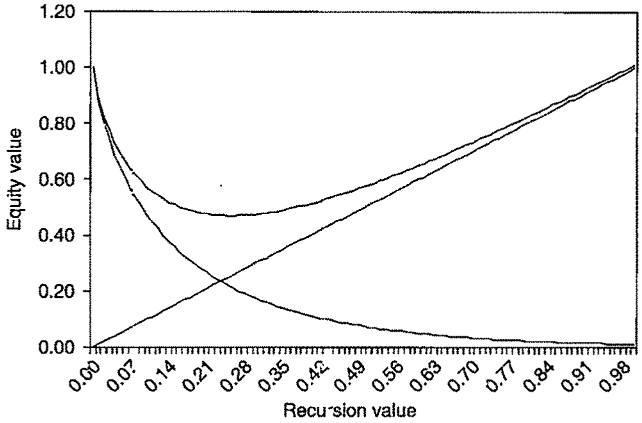
The downward sloping curve in the above graph is the real (adaptation) value of equity, $\kappa(\eta)$. The upward sloping line is the recursion value of equity, η. The convex upward sloping curve is the overall value of equity which is the sum of its recursion value and its real (adaptation) value, $P(\eta) = \eta + \kappa(\eta)$.

ratio, equity value is comprised mainly of recursion value. At a market to book ratio of unity, for example, Figure 3 shows that real (adaptation) value contributes only 0.0035 of 1 per cent to the overall market value of the firm's equity. A similar picture emerges for the Cyclical Consumer and Financials grouping which returns a slightly higher estimate of the risk parameter at $\theta = 8.3093$. When the market to book ratio is $P(\eta) = 0.2524$, which is the minimum market to book ratio for this industry grouping, then Table 4 shows that the market value of equity will be comprised $0.1691/0.2524 \approx 67\%$ of recursion value and $0.0833/0.2524 \approx 33\%$ of real (adaptation) value. However, as the market to book ratio increases beyond this minimum value, Figure 4 shows that the real (adaptation) value of equity falls quickly away and equity value is comprised almost exclusively of recursion value—even for moderately low values of the market to book ratio. Thus, when the market to book ratio is unity the real (adaptation) value of equity will be almost nothing.

There are, however, two industry groupings where real (adaptation) options appear to make a more significant contribution to equity value. The first of these is in the Information Technology, Non-Cyclical Consumer, Non-Cyclical Services and Resources grouping which returns an estimated risk parameter of $\theta = 2.9619$. A graph of the relationship between recursion value, real (adaptation) value and the overall market value of equity when $\theta = 2.9619$ for this broad industry grouping is to be found in Figure 5. When the market to book ratio is $P(\eta) = 0.4704$,

FIGURE 5

INFORMATION TECHNOLOGY, NON-CYCLICAL CONSUMER, NON-CYCLICAL SERVICES AND RESOURCES GROUPING: DIVISION OF THE MARKET VALUE OF EQUITY BETWEEN RECURSION AND REAL (ADAPTATION) COMPONENTS WITH A RISK PARAMETER OF $\theta = 2.9619$



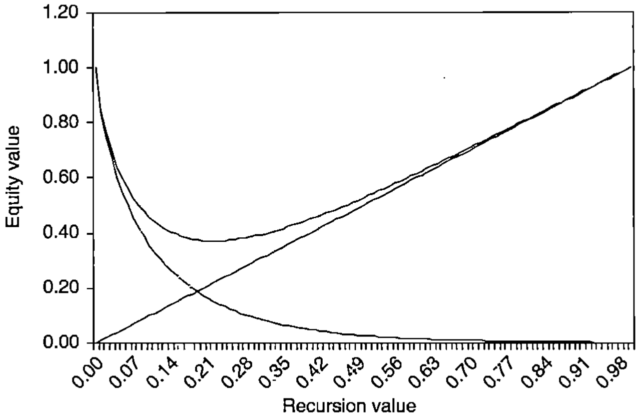
The downward sloping curve in the above graph is the real (adaptation) value of equity, $\kappa(\eta)$. The upward sloping line is the recursion value of equity, η. The convex upward sloping curve is the overall value of equity which is the sum of its recursion value and its real (adaptation) value, $P(\eta) = \eta + \kappa(\eta)$.

which is the minimum market to book ratio for this industry grouping, then Table 4 shows that the market value of equity will be comprised $0.2493/0.4704 \approx 53\%$ of recursion value and $0.2211/0.4704 \approx 47\%$ of real (adaptation) value. As the market to book ratio becomes larger, however, recursion value again makes an increasingly larger (proportionate) contribution to the overall market value of equity. Thus, when the market to book ratio is unity, the recursion value of equity will be $\eta = 0.9884$ and the real (adaptation) value of equity will be $\kappa(0.9884) = 0.0116$. However, even for this broad industry grouping once the market to book ratio has increased much beyond two, then the real (adaptation) value of equity will have declined to almost nothing.

A similar picture emerges for the Basic Industries, General Industrials and Utilities industrial grouping. For this broad industry grouping our estimate of the risk parameter turns out to be $\theta = 4.4787$. A graph of the relationship between recursion value, real (adaptation) value and the overall market value of equity when $\theta = 4.4787$ is contained in Figure 6. Our estimate of the risk parameter for this broad industry grouping is based on a minimum market to book ratio of $P(\eta) = 0.3718$ and this is comprised $0.2244/0.3718 \approx 60.36\%$ of recursion value and $0.1474/0.3718 \approx 39.64\%$ of real (adaptation) value. Again, however, recursion value makes an increasingly larger (proportionate) contribution to the overall market value of equity as the market to book ratio grows. Thus, when the market

FIGURE 6

BASIC INDUSTRIES, GENERAL INDUSTRIALS AND UTILITIES GROUPING: DIVISION OF THE MARKET VALUE OF EQUITY BETWEEN RECURSION AND REAL (ADAPTATION) COMPONENTS WITH A RISK PARAMETER OF $\theta = 4.4787$



The downward sloping curve in the above graph is the real (adaptation) value of equity, $\kappa(\eta)$. The upward sloping line is the recursion value of equity, η. The convex upward sloping curve is the overall value of equity which is the sum of its recursion value and its real (adaptation) value, $P(\eta) = \eta + \kappa(\eta)$.

to book ratio is unity, the recursion value of equity will be $\eta = 0.9982$ and the real (adaptation) value of equity will be a mere $\kappa(0.9982) = 0.0018$.[9]

The overall conclusion to be had from this empirical analysis is that real (adaptation) options can make a significant contribution towards the overall value of a firm's equity. This will generally only be the case, however, when the market to book ratio for equity is relatively low. For most firms, once the market to book ratio increases much beyond unity, real (adaptation) value accounts for only a very small proportion of overall equity value. Given this, it is important to note that over 17 per cent of the firms in our sample from the Cyclical Services Industry have market to book ratios which are less than unity, over 10 per cent of firms from the Information Technology, Non-Cyclical Consumer, Non-Cyclical Services and Resources grouping have market to book ratios that are less than unity, in excess of 41 per cent of the sample of firms from the Cyclical Consumer and Financials grouping have market to book ratios that are less than unity while over 22 per cent of firms from the Basic Industries, General Industrials and Utilities grouping have market to book ratios that fall below unity. Overall more than one in five of the firms in the sample have market to book ratios that are less than unity. This taken in conjunction with the fact that there are a few firms—mainly in the Information Technology, Non-Cyclical Consumer, Non-Cyclical Services and Resources grouping—where real (adaptation) option values can still make a significant contribution to overall equity values when the market to book ratio exceeds this benchmark figure of unity, means that there can be little doubt that the real (adaptation) options available to firms do in general make a significant contribution to the overall value of corporate equity. Furthermore, the burgeoning volume of empirical work that ignores the non-linearities which are induced by these real (adaptation) options must inevitably suffer from an omitted variables problem (Greene, 1997, pp. 402–4; Morel, 2003, p. 1346). Parameter estimation associated with these linear models will then be both inconsistent, and inefficient and, given this, the results produced by them will be very difficult (if not impossible) to interpret.

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[9] Here it is important to note that even for quite modest values of the market to book ratio, disaggregation of equity value into its recursion and real (adaptation) value components is fairly insensitive to the risk parameter used in the calculation. If one applies the Basic Industries, General Industrials and Utilities Grouping estimated risk parameter of $\theta = 4.4787$ to a market to book ratio of $P(\eta) = 0.7$ and chooses the solution that maximizes the contribution which recursion value makes to overall equity value, then one would obtain a recursion value of $\eta = 0.6905$ and a real (adaptation) value of $\kappa(0.6905) = 0.0095$. Now, suppose instead we carry out the same calculations with a risk parameter of (say) $\theta = 6$. Under this risk parameter, equity value disaggregates into $\eta = 0.6974$ of recursion value and $\kappa(0.6974) = 0.0026$ of real (adaptation) value. Finally, if the risk parameter is reduced to (say) $\theta = 3$, then the market value of equity would be comprised of $\eta = 0.6617$ in recursion value and $\kappa(0.6617) = 0.0383$ in real (adaptation) value. Thus, fairly large changes to the risk parameter, θ, have little impact on the way in which equity value disaggregates into its recursion and real (adaptation) value components.

SUMMARY CONCLUSIONS

It now seems to be generally acknowledged that firms are seldom constrained to use their productive resources in an immutable way; that is, firms normally have the flexibility to change their existing investment opportunity sets by employing 'liquidations, sell-offs, spin-offs, divestitures, CEO changes, mergers, takeovers, bankruptcies, restructurings, and new capital investments' (Burgstahler and Dichev, 1997, p. 188).[10] This ability a firm has to change its investment opportunity set will be a valuable option that has the potential to make a significant contribution to the overall market value of its equity. This in turn implies that there will be a non-trivial domain over which there will have to be a non-linear relationship between the market value of a firm's equity and its underlying determining variables. Using this fundamental distinction between the recursion and real (adaptation) values of equity introduced in the seminal paper of Burgstahler and Dichev, we show that the extent and magnitude of these non-linearities will depend on a crucial risk parameter which governs the evolution of the firm's recursion value. Unfortunately, it is not possible to observe the recursion value of equity directly and so, one must resort to some form of indirect estimation technique if one is to make judgments about the likely contribution that real (adaptation) options will make to the overall value of corporate equity. Our approach is to use an order statistic based on a sample of market to book ratios for a given firm or industry in conjunction with the aggregation theorem developed by Ashton *et al.* (2003) to obtain reliable estimates of this risk parameter. This, in turn, allows one to disaggregate the overall market value of a firm's equity into estimates of its recursion and real (adaptation) option components, and thereby one can determine the magnitude and extent of any non-linearities that arise in the equity pricing relationship.

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[10] Many (including Chambers, 1986, 1995) have asserted that firms are in a continual process of adaptation.

These estimation procedures when applied to a large sample of U.K. firms comprising four broad industry groupings, show that the contribution which real (adaptation) options make to the overall value of equity is most pronounced when the market to book ratio (for equity) falls below unity—although for some industrial groupings, this real (adaptation) option value can make a significant contribution to overall equity values for market to book ratios beyond this benchmark figure. Since in excess of one in five of the sample of firms used in our empirical analysis return a market to book ratio that falls below this benchmark figure, it is clear that the real (adaptation) options can make a significant contribution to the overall market value of corporate equity. Furthermore, ignoring the non-linearities induced by these real (adaptation) options in empirical work will almost certainly introduce an omitted variables problem into any regression procedures that are used. Parameter estimation will then be inconsistent and inefficient and, given this, it will be difficult to determine what studies that use these linear regression techniques can tell us. Hence, one of the more important implications of our study is that it points to the need for the development of more refined non-linear regression procedures that can be applied to the peculiar problems that arise in the empirical research of this area. The most obvious approach is to develop these non-linear regression procedures so that they are compatible with the burgeoning real (adaptation) models that one finds in the finance and allied literatures.

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APPENDIX

NON-LINEARITIES IN EQUITY VALUE

Suppose the real (adaptation) value of equity, $\kappa(\eta)$, is identically equal to zero for all recursion values, η. Ashton *et al.* (2003) show that if this condition holds, the market value of equity will be a purely linear function of its determining variables. Given this, define $x(t)$ to be the firm's instantaneous earnings (per unit time) at time t. We can then differentiate through the valuation formula given in the 'Market to Book Ratio and Equity Pricing' section of the text in which case:

$$\frac{\partial P}{\partial x} = \frac{\mathrm{d}P}{\mathrm{d}\eta} \cdot \frac{\partial \eta}{\partial x} = c$$

where, as previously, P is the market value of the firm's equity stock,

and c is a constant reflecting the contribution which accounting earnings make towards the recursion value of equity (Ashton *et al.*, 2003, pp. 425–6).

This result means that there will have to be a purely linear relationship between the market value of equity on the one hand and earnings on the other.

Figure A1 presents empirical evidence on this issue for the U.K. Cyclical Services Industry. The sample on which this figure is based consists of 2,392 firm-years covering accounting periods that ended in the years from 1992 until 2002 (inclusive). The sample covers all available firm-years for the Cyclical Services Industry over this period but excludes some 'extreme' observations in order to prevent 'squashing' or large gaps appearing between the inner and outer data points appearing on

FIGURE A1

CYCLICAL SERVICES INDUSTRY: SUMMARY STATISTICS FOR MARKET VALUE OF EQUITY DIVIDED BY THE BOOK VALUE OF EQUITY AND BOOK (OR ACCOUNTING) EARNINGS DIVIDED BY THE BOOK VALUE OF EQUITY

(N = 2,392 firm-years covering the period, 1992–2002)

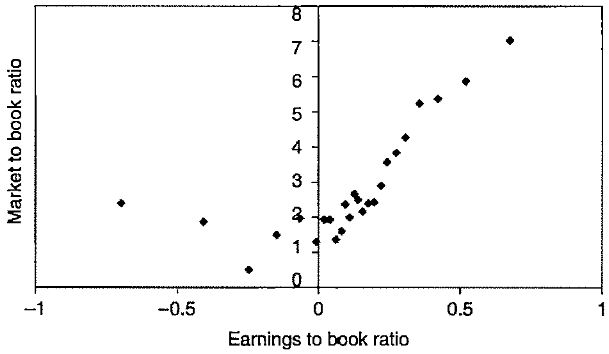
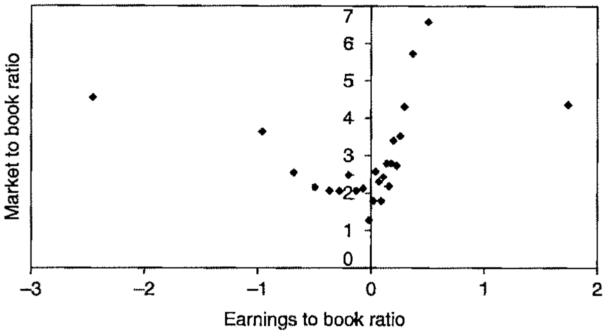


FIGURE A2

INFORMATION TECHNOLOGY, NON-CYCLICAL CONSUMER, NON-CYCLICAL SERVICES AND RESOURCES: SUMMARY STATISTICS FOR MARKET VALUE OF EQUITY DIVIDED BY THE BOOK VALUE OF EQUITY AND BOOK (OR ACCOUNTING) EARNINGS DIVIDED BY THE BOOK VALUE OF EQUITY

($N = 2{,}143$ firm-years covering the period, 1992–2002)



the figure. Furthermore, for each firm-year the market value of equity 100 days after the year ending at time $(t + 1)$ was divided by the book value of equity as at time t. Likewise, the accounting earnings for the year ending at time $(t + 1)$ is divided by the book value of equity as at time t. The accounting earnings to book ratios were then ordered from the smallest to the largest values and divided into twenty-five groups of approximately 100 observations each. The average earnings to book ratio and the average market to book ratio were then calculated for each of these groups. It is these twenty-five average ordered pairs that appear on Figure A1.

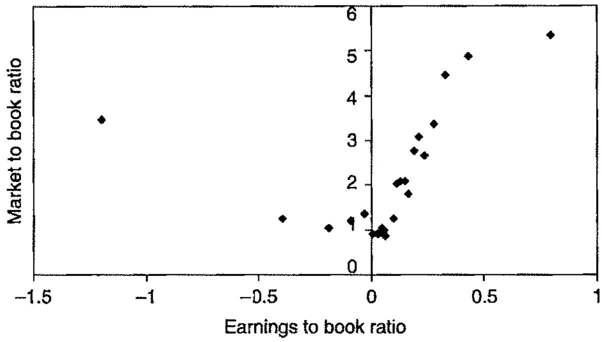
Now, if there are no real (adaptation) options available to firms then, as previously noted, one would expect there to be a purely linear relationship between equity value and earnings. The fact that the data appearing in Figure A1 clearly violate this condition means that our data are compatible with the hypothesis that real (adaptation) options make a significant contribution to the overall market value of equity for at least some of the firm-years contained in our sample.

Figure A2 summarizes equivalent calculations (to those appearing in Figure A1) for the broad industrial grouping consisting of the Information Technology, Non-Cyclical Consumer, Non-Cyclical Services and Resources grouping. The sample on which this Figure is based consists of 2,143 firm-years covering accounting periods that ended in the years from 1992 until 2002. This sample again excludes some 'extreme' observations in order to prevent 'squashing' or large gaps appearing between the inner and outer data points appearing on the figure. As in the case of Figure A1, the accounting earnings to book ratios were ordered from the smallest to the largest values and divided into twenty-five groups, although the smaller sample size for this industry grouping means that

Figure A3

CYCLICAL CONSUMER AND FINANCIALS GROUPING: SUMMARY STATISTICS FOR MARKET VALUE OF EQUITY DIVIDED BY THE BOOK VALUE OF EQUITY AND BOOK (OR ACCOUNTING) EARNINGS DIVIDED BY THE BOOK VALUE OF EQUITY

(N = 1,903 firm-years covering the period, 1992–2002)



each group consists of about eighty observations. The earnings to book ratios and the market to book ratios have again been averaged for each of these groups and it is these average ordered pairs that are summarized in Figure A2. The data are again incompatible with the linearity hypothesis and so, for this broad industry grouping too, there is evidence of real (adaptation) option value making a significant contribution to overall equity value for at least some of the firm-years on which Figure A2 is based.

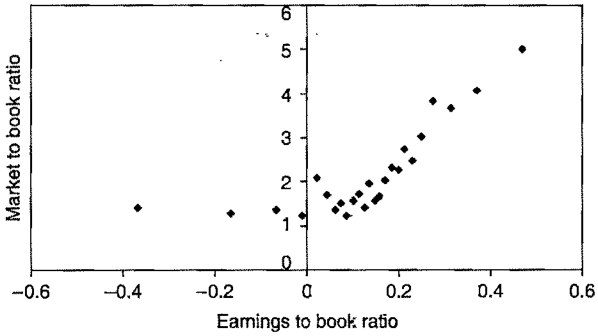
A third example is provided by the broad industry grouping consisting of the Cyclical Consumer and Financials industries. There are 1,903 firm-years available for this broad industry grouping covering the years from 1992 until 2002. Again, however, a few observations have been excluded in order to aid graphical presentation. The data relating to this broad grouping are summarized in Figure A3 and consist of twenty-five ordered groups. Each group is comprised of the average market to book ratios and the average earnings to book ratios of approximately seventy-five observations. Note that for this broad grouping the data are again incompatible with the linearity hypothesis. In other words, there is evidence of real (adaptation) option value making a significant contribution to overall equity value for at least some of the firm-years on which the graph is based.

Our final set of observations is based on the Basic Industries, General Industrials and Utilities broad industry grouping. The sample relating to this industry grouping is comprised of 1,748 firm-years although a few firm-years have again been omitted in order to facilitate graphical presentation. Results relating to this industry grouping are summarized in Figure A4 and are based on twenty-five ordered groups, with each group comprised of the average market to book ratios and the average earnings to book ratios of approximately seventy observations. We can again

FIGURE A4

BASIC INDUSTRIES, GENERAL INDUSTRIALS AND UTILITIES GROUPING: SUMMARY STATISTICS FOR MARKET VALUE OF EQUITY DIVIDED BY THE BOOK VALUE OF EQUITY AND BOOK (OR ACCOUNTING) EARNINGS DIVIDED BY THE BOOK VALUE OF EQUITY

($N = 1{,}748$ firm-years covering the period, 1992–2002)



see from this graph that the data are incompatible with the linearity hypothesis. In other words, for this broad industry grouping too there is evidence that real (adaptation) options make a significant contribution to overall equity value for at least some of the firm-years on which the graph is based.

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Social Reporting by Islamic Banks

The last thirty years have witnessed the appearance and rapid expansion of Islamic banking both inside and outside the Islamic world. Islamic banks provide financial products that do not violate *Sharia*, the Islamic law of human conduct. The Islamic principles upon which the banks claim to operate give an important role to social issues. Applying these principles, we develop a benchmark set of social disclosures appropriate to Islamic banks. These are then compared, using a disclosure index approach, the actual social disclosures contained in the annual reports of twenty-nine Islamic banks (located in sixteen countries) to this benchmark. In addition, content analysis is undertaken to measure the volume of social disclosures. Our analysis suggests that social reporting by Islamic banks falls significantly short of our expectations. The results of the analysis also suggest that banks required to pay the Islamic religious tax *Zakah* provide more social disclosures than banks not subject to *Zakah*.

Key words: Islamic banks; Islamic values; Social reporting; *Zakah*.

Studies of accounting and accountability from an Islamic perspective have been emerging over the last 25 years. Scholars of Islamic accounting, such Gambling and Karim (1986, 1991), Adnan and Gaffikin (1997), Alam (1998), Baydoun and Willett (1997, 2000), Suliman (2000) and Lewis (2001) have adopted an ethical normative approach to develop general accounting theories dealing with financial reporting by Islamic business entities. However, these studies tend not to reflect the political, economic and regulatory situation, and other forces that affect reporting by Islamic businesses. In addition, with exception of the model of social reporting developed by Haniffa (2001), all the prior research has been concerned with overall reporting of Islamic businesses, and not specifically with social reporting.

Islamic societies have become affected, and in some cases dominated, by Western cultural values. This makes it difficult for business enterprises operating in Islamic countries (even those where a full Islamic system applies, such as Sudan and Iran) to apply the accounting and reporting recommendations of the normative studies referred to above. This is likely to continue, even though Western financial and social reporting frameworks may not be suitable for Islamic enterprises. The

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significance of this problem has been highlighted by the emergence of a new type of enterprise that aims to abide by Islamic principles and thus serve the ethical needs of Islamic societies: Islamic banks.

In addition to their role in providing investment and financing activities for Muslims who are keen to adhere to Islamic law in their business transactions, Islamic banks offer their clients a variety of financial products that do not violate *Sharia.*[1] As well as following normal bank accounting and reporting practices, an Islamic bank will put into effect practices that are based on the rulings of its *Sharia* Supervisory Board. Recently, many Islamic banks have adopted the recommendations of the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), which was established in 1990 to set accounting standards (AAOIFI, 1999) for Islamic financial institutions.

Islamic banks have been described as having 'a social face' (Mashhour, 1996, p. 33). This is acknowledged formally by many banks: 'Social activities are emphasized in Islamic banks' articles of association among their objectives and functions' (El-Ashker, 1987, p. 45). The claimed importance of the social dimension provides us with an opportunity to explore the nature and extent of social reporting by Islamic banks. Here, we develop a benchmark, based on an Islamic perspective of accountability, social justice and ownership, for social disclosures that we would expect Islamic banks to provide. A secondary objective is to examine the actual social reporting practices of Islamic banks, and compare our empirical findings with that benchmark.

ISLAMIC BANKING: THEORIES AND PRACTICES

We define Islamic banks as those banks that claim to follow Islamic *Sharia* in their business transactions. *Sharia* requires transactions to be lawful (*halal*) and prohibits transactions involving interest and those involving speculation. It also requires Muslims to pay the religious tax *Zakah.* Islam's strict ban on interest has social roots. Mirza and Baydoun (2000, p. 36) argue that *Riba* (usury) violates the principle of social justice, in that it rewards people who neither make an effort nor participate in the risks of the projects financed. Interest-based transactions allow lenders to receive the advantages associated with lending their money, while avoiding the risks and losses attached to ownership. Gambling and Karim (1991, p. 34) refer to this as 'unfair trading'. Talip and Phay (1998, p. 65) suggest that the main reason for the ban on *Riba* is to enforce the spirit of brotherhood between Muslims.

Rather than dealing in interest, Islamic banks use forms of financial instruments, both in mobilizing funds for their operations and in providing finance for their clients, that comply with the principles and rules of *Sharia* (Archer and

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[1] *Sharia* is the Islamic law of human conduct, which regulates all matters of the lives of Muslims. It is based on God's holy word in the *Qur'an*, the deeds and sayings of the prophet Mohammed (*Sunah*), and the consensus of Islamic religious scholars. In this article, quotations from the *Qur'an* are taken from the translation of A. Ali (1946) and references to the *Sunah* are taken from M. Ali (1961).

Karim, 2001, p. 1). Islamic banks obtain funds from depositors through *Mudaraba* contracts. In their original form, these contracts involved one party contributing capital to a venture while the other party contributed labour. The two parties would share the profits generated by the contract according to pre-agreed percentages, but in case of loss the capital provider would bear all financial losses up to the amount invested, while the other party would receive no return for his/her work. In their current form, depositors place their funds with the bank, and the bank invests these funds, with profits being divided between the bank and the depositors according to a predetermined ratio. In the event of loss, the depositors bear the losses and the bank receives nothing for its efforts.

The majority of Islamic scholars consider it permissible to charge higher prices for goods if payment is deferred. Islamic banks have developed a range of 'mark-up' instruments, the main one being *Murabaha*. This dominates the activities of Islamic banks to the extent that in some banks it reaches over 90 per cent of financing activities (Hassanien, 1996, p. 13). In its current form (Hmoud, 1998), the client specifies the goods he/she wants to acquire (and sometimes nominates a particular supplier), and the bank purchases the goods from the supplier at their normal price for cash and resells them to the client at a higher price, the total amount due often being paid by instalments.[2] Other mark-up instruments are *Ijarah* and *Salam*.[3] Islamic banks also finance customers through profit/loss-sharing instruments such as *Mudaraba*[4] and *Musharaka* (a form of partnership). Islamic banks undertake other activities provided by conventional banks such as letters of credit, letters of guarantee and current accounts. However, the main condition is that such transactions should not violate *Sharia*, for example by involving interest.

To make sure that the religious expectations of those who deal with Islamic banks have been met, Islamic banks appoint a religious auditor (Daoud, 1996). This may be a single adviser, who is usually referred to as the *Sharia* consultant, or more commonly takes take the form of a '*Sharia* Supervisory Board'. *Sharia* Supervisory Boards are in-house religious advisers. They issue a report to the users of financial statements certifying that the bank has adhered to Islamic principles' (Karim, 1990, p. 34). The responsibilities of the *Sharia* Supervisory Board include *ex ante* and *ex post* auditing of transactions, the calculation and payment of *Zakah*, and advising the bank on its accounting polices (Karim, 1990, p. 35). This board provides the necessary assurance for those who deal with Islamic banks that their religious expectations have been met. The existence of such assurance may reduce the necessity for very detailed disclosure of many issues.

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[2] *Murabaha* financing still attracts strong resistance from some Islamic scholars, who claim that it violates Islamic principles, in particular because it is similar to interest-based transactions; for more discussion see Al-Abadi (1988), Al-Azzizi (2000).

[3] *Ijara* and *Ijarah wa Iqtina* are similar in some aspects to operating and finance leases. One of the main differences relates to maintenance, where non-routine maintenance is the responsibility of the lessor according to Islamic principles (Western finance leases normally impose such maintenance responsibilities on the lessee). See Zaid (1996a) for more details. A *Salam* sale is a forward sale contract, whereby the seller receives immediate payment and undertakes to deliver well-described goods in the future. See Zaid (1996b) for more details.

[4] In this case, the bank provides funds to an agent (rather than depositors providing funds to the bank) who invests the money, on the same basis as the *Mudaraba* contract discussed above.

The early Islamic banks, such as The Farmers' Credit Union (established in Pakistan in the late 1950s) and the Mit Ghamer Savings Bank (established in Egypt in 1963), were based on social initiatives to achieve social objectives. A study by Mashhour (1996) revealed that the legislative acts or the establishment contracts of many of the early Islamic banks (such as Dubai Islamic Bank 1975, Faisal Islamic Banks in Egypt and Sudan in 1977, and Jordan Islamic Bank in 1978), contained articles requiring the bank to undertake social activities. For example, the first objective mentioned in the Act establishing the Sudanese Faisal Bank in 1977 stated that the bank 'works according to Islamic principles to support the development of society'. The Act that originally regulated Jordan Islamic Bank in 1978[5] set the objective of the bank as 'aiming to meet the economic and social needs in the field of banking service'. The Act also contained a distinct section about the social services of the bank. More recent acts regulating Islamic banks have contained similar statements about the banks' social role (for example, Iraqi Islamic Bank's articles of association in 1993).

Why are Islamic banks (more perhaps than other businesses) expected to undertake such an important social function? The Islamic banks emerged after a long period of decline in financial activities based on Islamic principles. During the period when Islamic banking transactions were not available, Islamic charitable organizations were active and strong. This has led people in countries where Islam is the predominant religion to perceive any Islamic organization as a charity. This implies that people will have high social expectations of Islamic banks.[6] In addition, Al-Mograbi (1996) has argued that Islamic banks fill two very important positions in the community: religious and financial. On the religious side, Islamic banks take responsibility for complying with the Islamic way, thus setting an example for people in the community who observe their activities. On the financial side, the banks' control of large funds and revenues helps them to undertake a social role. However, despite the potential importance of the social role, a study of thirty-two Islamic banks by a group of researchers from the International Institute of Islamic Thoughts (1996) found that economic objectives overrode the social objectives of these banks. The study also concluded that economic criteria had priority over social criteria when evaluating investment opportunities. However, the same study revealed that the social roles were very important for Islamic banks, and the majority of the banks in the sample undertook social activities such as *Zakah*.

Islamic banks, therefore, are seen by customers, depositors and the broader community as having a social as well as an economic role, and this is often acknowledged in the official documents establishing the banks. Even if, in practice, the economic role may dominate the social role, it would be reasonable to expect that Islamic banks would report explicitly to stakeholders on how they have discharged this social role. Hence, we would expect Islamic banks to reflect a high level of social reporting in their annual statements.

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[5] This Act was repealed in 2000. Islamic banks in Jordan are now regulated under a section of the general Banking Act (number 28 for the year 2000). The new Act specifically mentions the social role of the Islamic banks.

[6] This argument draws on an interview on 24 October 2002 in Amman between the first author and Mr Ibrahim Abu-Samra, head of the research department of Jordan Islamic Bank and the person responsible for designing the bank's annual reports.

SOCIAL REPORTING—AN ISLAMIC PERSPECTIVE

Many theories have been developed in the social reporting (SR) literature trying to answer the question of why firms disclose social information, where such disclosures are not enshrined in legislation (Gray *et al.*, 1995a, p. 47).[7] Theories also consider for whom social information is provided, since there are many potential users of information disclosed by firms, with varying degrees of importance for the firm.[8] These theories of social reporting have offered a range of explanations and justifications for social disclosures, but they have not provided a conclusive answer to either the question of why the actual social disclosures observed in practice have been made or the question of what should be the appropriate form and content of social reporting. Those who have written on SR agree that it is a phenomenon for which it is difficult to find explanations (Campbell, 2000, p. 81). Perhaps the problem lies not in theories but rather in the nature of responsibility itself. In Western societies, where theories of SR have developed, ethical codes are often (though not universally—Lewis and Unerman, 1999) seen to be relativistic: A given practice may be accepted by an individual or group of people but not acceptable to others, and there is no agreed way of determining whose ethical views are valid. As argued by Gray *et al.* (1987), identifying the responsibility of any organization is problematic because responsibility changes over time and from place to place and there is no agreed answer to the question of who determines what responsibilities exist.

On the other hand, in Islam, the rights and obligations of individuals and organizations with respect to others are clearly defined by religion, and are neither imposed by secular law that is exposed to change, nor subject to personal views. From an Islamic standpoint, this is considered to make Islam a stronger and more effective basis for ethical values. Despite the presence of many schools of thought in Islam, there is agreement on basic matters of principle (Hamid *et al.*, 1993, p. 136). Responsibilities of members of society to each other are well defined, do not change over time and are not affected by different theoretical frameworks. This makes definitions of responsibilities stable without being static, and hence potentially irrelevant in other places or times. Islam claims to be a religion relevant for all times and places.

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[7] Gray and his collaborators tend to distinguish between social reporting and environmental reporting. In this article, we have treated environmental disclosures as a sub-set of social disclosures.

[8] Examples of these theories are the normative accountability approach (e.g., Gray, 2001; Gray *et al.*, 1987, 1988, 1996, 2001), the decision usefulness approach (e.g., Buzby and Falk, 1979; Rockness and Williams, 1988; Epstein and Freedman, 1994; Deegan and Rankin 1997), agency and positive accounting theories (e.g., Belkaoui and Karpik, 1989; Ness and Mirza, 1991), stakeholder theory (e.g., Ullmann, 1985; Roberts, 1992), legitimacy theory (e.g., Guthrie and Parker, 1989; Campbell, 2000), and political economy theory (e.g., Woodward *et al.*, 2001).

In addition, in the Islamic context, the social responsibilities of individuals that are derived from the word of God (contained in the *Qur'an*) and from his prophet Mohammed's deeds and sayings (the *Sunah*) also apply to firms. Similarly, the main purpose of an Islamic business is to satisfy the will of God, through following the *Qur'an* and *Sunah*. Islam considers work to be part of the worship of God. It is legitimate for a business to aim to achieve profits, but this goal should be pursued according to *Sharia*. Since *Sharia* defines the norms of human conduct, and how business has to deal with its external environment, businesses claiming to comply with *Sharia* should be clearer about their roles in society.

Social reporting takes place within a framework of social relations. Fundamental to an Islamic perspective on social reporting is an understanding of the concepts of accountability, social justice and ownership that are central to social relations. This understanding will then allow us to develop a benchmark for the content of social disclosures that businesses claiming to comply with *Sharia* could reasonably be expected to make.

Accountability

Gray (2001, p. 11) has defined accountability as 'identifying what one is responsible for and then providing information about that responsibility to those who have rights to that information'. In Western models of accountability, firms (seen either as entities in their own right or as represented by managers) are accountable to their stakeholders; a major theoretical issue is identifying who are the relevant stakeholders who have rights to information, and how far such rights extend. In these models, the responsibility and therefore the accountability of companies are not considered to extend beyond human society, and therefore such theories do not envisage any accountability to God (Haniffa, 2001, p. 9).

From the Islamic perspective, the perceived relationship of individuals and firms with God affects the concept of accountability. This flows from the basic Islamic concept of *Tawhid* (the unity of God). According to this concept, the Creator is one, and everything originates from this one source. All created things are thus elements of a single set and the whole world is one unit with a single goal, which is God's will. The concept of the unity of God implies total submission to God's will and following the religious requirements in all aspects of life. Each Muslim is thus responsible to God for everything that he or she does. Baydoun and Willett (1997, p. 6) have argued that the concept of the unity of God gives rise to a different and broader concept of accountability than that implied by Western models. In the Islamic framework, all people, and businesses, are accountable to God on the Day of Judgment for their actions during their lives: 'God takes careful account of everything' (*Qur'an*, 4:86). The notion that everyone is accountable to God provides a different dimension to the concept of accountability beyond what has been reflected in Western theories of social reporting. Muslims undertake social activities not for pure financial reward, but rather to gain God's praise and avoid God's anger on the Day of Judgment: 'Then shall anyone who does an atom's weight of good see it, and anyone who does an atom's weight of evil see it' (*Qur'an*, 99:7, 8).

The relationships of Muslims to each other and to the *Umma* (which refers to Islamic society) in general are emphasized in the *Qur'an* and *Sunah*. Submission to the will of God thus includes recognizing the rights of others, and dealing with society justly. Thus, accountability to God includes accountability to society. 'Business enterprises, both managers and providers of capital, are accountable for their actions both inside and outside their firms, accountability in this context means accountability to the community (*Umma*)' (Lewis, 2001, p. 113).

Social Responsibility and Justice

Islam stresses the concept of social responsibility. The term 'brotherhood' (*Akhowa*) is widely used in Islamic societies. All Muslims are considered to be brothers and should take care of each other, and no cheating or exploitation is allowed, whatever the reasons. Muslims are supposed to take care of others in society—the prophet Mohammed said: 'the Muslims in their mercy towards each other are like a body, if a single part of it complains the other parts would be affected' (*Sahih Al-Bukhari*—Ali, 1961). The prohibition of *Riba* (usury), the requirement to pay *Zakah* and the provision of *Quard Hassan* (interest-free loans) are clear examples of the Islamic emphasis on social justice.

Islam also stresses that people should be dealt with justly: 'God commands justice, the doing of good' (*Qur'an*, 16:90). In this context, justice refers to being fair with everyone. Muslims are prohibited from engaging in any activity that includes any kind of exploitation, or leads to injustice or harm to anyone. As Ahmad (1995, p. 82) notes, 'Justice forms the core of the Quranic injunctions'. For Islamic businesses, the requirement to deal justly encompasses all dealings with employees, customers and all members of the society in which these businesses operate.

Ownership and Trust

God is the ultimate owner of everything. God has appointed humanity his vice-regent on earth and has entrusted humanity with stewardship of God's possession (Lewis, 2001, p. 110). Islam recognizes private ownership; everyone has the right to own properties, but the ownership is not absolute. A person holds property in trust for God, and should use this property according to God's will. The *Qur'an* acknowledges the right of ownership over wealth that has come rightfully into a person's possession, and this recognition extends equally to public as well as private ownership. In both cases, however, a person holds a delegated right of ownership and hence wields a restricted authority over wealth in his or her possession (Ahmad, 1995, pp. 44–45). This trustee-ownership principle implies that ownership should be exercised for the benefit of society as well as for the benefit of the owner: 'if the choice is between an ethical-moral consideration and profit, the former prevails over the latter, other things being equal' (Bassiouni, 1988).

This argument adds a new dimension to accountability: Islam respects private ownership, but ownership is not absolute. God's commandments and the benefits of society should be given priority when dealing with properties. The owner is responsible for using the available resources according to the will of God and to the benefit of society.

Disclosure in an Islamic Context

For pious Muslims, following the requirements of *Sharia* is central to life. In an Islamic context, the main objective of corporate reporting is to allow Islamic enterprises to show their compliance with *Sharia* (Baydoun and Willett, 1997, p. 6). Other objectives of corporate reporting may include those known in the Western model, such as assisting decision makers in making economic decisions, but from an Islamic perspective, these are secondary objectives. This view of the primary objective is adopted by AAOIFI when setting out its statement of objectives of financial accounting for Islamic banks and financial institutions. The implication of this position is that Islamic businesses should disclose all information necessary to advise the *Umma* (Islamic community) about their operations, even if such information would work against the firm itself. The concept of disclosure is thus related to the concept of accountability: In an Islamic context, the *Umma* has the right to know how organizations that are part of the *Umma* affect its well-being.

The duty to disclose the truth is a very important issue in the Islamic context, and this duty applies to businesses as much as to individuals. This duty is emphasized in the *Qur'an*: 'and cover not truth with falsehood, nor conceal the truth when you know' (2:42). 'Six verses of the *Qur'an* refer to relevance; one meaning of the relevance referred to is disclosure of all facts' (Askary and Clarke, 1997, p. 142). For Islam, God is omniscient. God says 'I know what ye reveal and what ye hide' (*Qur'an*, 4:33) and also 'he [God] knows what is manifest and what is hidden' (*Qur'an*, 87:7). God does not need humans or businesses to show God what they are doing because God already knows what people have done, are doing and will do in the future. However, as accountability to God implies accountability to society, the duty to disclose the truth is owed to the *Umma* as well as to God. The requirement for Muslims to uncover the truth is intended to help the community to know the effect of a person or a business on its wellbeing. Muslims are responsible for their actions and must take into account this responsibility towards the society in where they live because their actions affect society (Al-Mograbi, 1996, p. 20). Islamic businesses are required, as is the case for individuals, to undertake charitable activities and to help the poor and people in need. This is emphasized in many of the Quranic verses and the *Sunah*. God says 'of their goods take alms that so thou mightest purify and sanctify them' (*Qur'an*, 9:103). The requirement to pay *Zakah* is a clear example of such obligation (the *Qur'an* specifies eight uses for *Zakah*). The information provided by Islamic business enterprises, in addition to showing compliance with *Sharia*, should therefore help Muslims in performing their religious duties, especially the payment of *Zakah*.

The implication of this discussion is that there are three broad objectives that can be used as the basis for identifying the social disclosures of Islamic business enterprises:

1. To show compliance with Islamic principles, in particular dealing justly with different parties.
2. To show how the operations of the business have affected the wellbeing of the Islamic community.
3. To help Muslims to perform their religious duties.

Such objectives will now be used as the basis for proposing a benchmark for social reporting by Islamic banks. Our benchmark is based on the broader concept of accountability that Islamic banks accept: claiming to follow Islamic principles requires these banks to consider ethical issues differently from banks following Western ways. Our benchmark is pragmatic and takes into account the different secular effects facing Islamic banks. However, this does not prevent them from disclosing our suggested items on a voluntary basis, even if they are not required by regulation.

A Benchmark for Social Disclosures by Islamic Banks

Disclosure of Sharia Supervisory Board Opinion The users of Islamic banks' annual reports should be interested in the report of the *Sharia* Supervisory Board because it shows whether the bank has complied with Islamic principles or not and whether it has dealt justly with different parties. Gambling *et al.* (1993, p. 198) argue that through the *Sharia* Supervisory Board, Muslim customers, including depositors and borrowers, obtain assurance that their moral expectations are being fulfilled. As the operations of any single bank will affect the whole of society, whether the bank has practised Islamic principles consistently will affect the wellbeing of Islamic society. Thus, we expect Islamic banks to report the *Sharia* Supervisory Board's opinion regarding the bank's operations.

Unlawful transactions Islamic banks should not enter into any transaction that violates Islamic principles. However, in some cases the bank may be forced to enter into such transactions. For example, in some countries the bank may have to deposit part of its customers' deposits in an interest-bearing account at the central bank. Also, the Islamic bank may use hedging or option transactions that are not accepted according to Islamic principles because they contain elements of excessive risk (*gharar*).

Where a bank has entered into transactions that are inconsistent with *Sharia* principles, and hence regarded as unlawful (*haram*) by Islam, the duty of accountability to God and society implies that information about these transactions should be disclosed to the community, to enable the community to assess the extent and materiality of such violations. We consider that the bank should provide information on (a) the nature of these transactions, (b) the reasons for undertaking such transactions, (c) the opinion of the Supervisory Board regarding the necessity of undertaking such activities, (d) the amount of revenue (expenses) earned (paid) in such transactions, and (e) how the bank disposed, or intends to dispose, of such revenues.

Zakah Although *Zakah* is obligatory for all Muslims, there is controversy in the Islamic literature as to whether Islamic businesses are obligated to pay this tax, or whether it is obligatory only for individuals (Shihaddeh, 1987, p. 32; Gambling and Karim, 1991, p. 103). However, Islamic banks may be required by law to pay *Zakah* (as is the case in Saudi Arabia) or the shareholders and/or the depositors may require a bank to pay *Zakah* on their behalf.

Zakah is a tax based on wealth, but the determination of which assets are subject to *Zakah* is complex, and the calculation of the *Zakah* base is thus difficult for businesses required to pay *Zakah* because they have different kinds of assets and liabilities. Businesses face the same problem even if they are not required to pay *Zakah*, if they wish to provide information to their shareholders and depositors to help the latter calculate the amount of *Zakah* due in respect of their investments and deposits. This situation led AAOIFI to issue a standard on the computation of *Zakah*.

We suggest that those banks required by law or by their shareholders to pay *Zakah* ought to provide a statement showing the sources and the uses of the *Zakah* fund. This should make clear any balance of the *Zakah* fund not yet distributed, and the reasons for the delay in distribution, if the amount is material. It would be appropriate to expect the *Sharia* Supervisory Board (either in the report of the board or separately) to attest that the amount of *Zakah* has been properly computed and these funds have been distributed according to God's will.

There is an important difference between our recommendations and the requirements of AAOIFI. Its standards require a statement of 'Sources and uses of funds in *Zakah* and charity funds': Such a statement includes both *Zakah*, which is obligatory, and charity funds, which are voluntary. It is important to distinguish between what the bank gives as charity on a voluntary basis, and what it gives in compliance with *Sharia*. *Zakah* is one of the pillars of Islam; charity is encouraged by Islam, but is not obligatory. The importance of such differentiation is that it assists the users of the annual report to know the amount that the bank has contributed to the wellbeing of society on a voluntary basis.

For these banks not required by law to pay *Zakah*, it is important for the shareholders and depositors to know how much they should pay as *Zakah* on their funds invested in the bank. We therefore consider that Islamic banks in this category should disclose the amount due in respect of shares and deposits. AAOIFI standards also require Islamic banks to provide such disclosures.

Quard Hassan This is an alternative to interest-bearing loans, which Islamic banks provide to individuals (and exceptionally to commercial clients in difficulty—Khan, 2000, p. 19) for socially beneficial purposes. *Quard Hassan* is one of the social contributions that Islamic banks make to the society in which they operate. It is important for users of annual reports to know about the bank's performance in this area, to help them to assess whether the bank is undertaking its religious duties and following Islamic principles. Users also need to know whether the bank finances such activity from its own resources or from the depositors' resources, and whether or not the bank operates a formal scheme whereby depositors may designate funds to be used for *Quard Hassan*.

Hence banks making *Quard Hassan* loans should disclose the amounts advanced to beneficiaries during the year, and the purposes for which the loans have been made. They should also disclose the sources from which such loans have been financed: These sources may include the bank's own funds and depositors' funds. These two recommended disclosures are covered by AAOIFI standards, which require the bank to prepare a statement called 'Statement of sources and uses of the *Quard* funds'. We consider that the bank should also disclose its policy for providing such loans and its policy for dealing with those who are unable to repay their loans.

Charity and Other Social Activities In addition to *Quard Hassan*, Islamic banks should engage in other social activities, such as making charitable donations (mentioned many times in the *Qur'an* and *Sunah*). Islamic banks, which usually control large funds, are expected to participate in providing such charitable donations. Islamic society and the stakeholders of the bank should know about the bank's contribution to the wellbeing of society, by helping the poor and needy, and whether the bank fulfils society's expectations regarding this issue. We therefore consider that Islamic banks should disclose (a) the nature of charitable and social activities financed by the bank, (b) the amount spent on these charitable and social activities, and (c) the sources of funds used for charity (these may include the bank's own funds and revenues from sources prohibited by *Sharia*).

Employees Islam's emphasis on social justice and on just dealing includes relations with employees. The Islamic community needs to know if the bank deals justly with its employees: Exploitation and discrimination are not acceptable, as these are strictly prohibited by the *Qur'an* and *Sunah*. In addition, education and training are important as Islam encourages the search for knowledge. Our disclosure benchmarks are consistent with those of Haniffa (2001), and relate to the bank's policies for payments of wages and bonuses, education and training for employees, equal opportunities, and the working environment. Providing such disclosures would help users in assessing whether the bank violates the Islamic principles regarding its dealings with its employees.

Late Repayments and Insolvent Clients Islamic banks, when utilizing mark-up financing arrangements such as *Murabaha* and *Ijara*, may face situations in which clients are unable to pay amounts when they fall due. Where the client experiences strained circumstances that lead to insolvency, the *Sharia* requires the lender to defer or even forgo the collection of the debt: 'If the debtor is in a difficulty, grant him time till it is easy for him to repay. But if ye remit it by the way of charity, that is best for you if ye only knew' (*Qur'an*, 2:280). We would expect users to be interested in how the bank deals with insolvent clients, and whether the bank deals with them in an ethical way, consistent with Islamic principles. We therefore consider that the Islamic bank should disclose (a) the bank's policy in dealing with insolvent clients, (b) the amounts charged as late penalties, if any, (c) the opinion of the *Sharia* Supervisory Board regarding whether charging penalties is permissible, and (d) how the bank deals with such penalties (allocation to charity or revenue).

The Environment Destruction of or damage to the physical environment, if it is considered harmful to an individual or community, is prohibited in Islam (Alam, 1998, p. 75). Banking is unlikely to cause direct harm to the environment in the way that, for example, extractive and nuclear industries might, but Islamic banks are not expected to finance activities that lead to harming the environment, because such projects would harm society. In addition, Islamic banks are able to provide donations to help preserve the environment. Users will require assurance that the activities of Islamic banks affect positively the well-being of Islamic society. We would therefore expect Islamic banks to report the nature and amount of any donations or activities undertaken to protect the environment, and to disclose whether the bank has financed any projects that may lead to environmental harm.

Other Community Involvement Aspects In addition to their *Zakah* and charitable activities, Islamic banks are expected to undertake other activities that enhance the wellbeing of the Umma, in which the Islamic bank is allowed to operate and make profits. Thus, Islamic banks should respect the requirements of their community (Al-Mograbi, 1996, p. 42). Because of this, Islamic banks are expected to give priority in their investments to those areas that help in solving the problems of the society, even if this would lead them to sacrifice some of their profits (Mashhoor, 1996, p. 19). Thus, we would expect an Islamic bank to disclose its role in enhancing economic development and addressing social problems (such as housing and literacy) of the societies in which it operates.

The disclosures we would expect are summarized in Table 1. Some of these are requirements of AAOIFI, others have been derived from the social reporting literature.

EMPIRICAL INVESTIGATION

The benchmark set of social disclosures has been derived by applying Islamic principles in an *a priori* manner. In order to determine the extent to which Islamic banks are disclosing social aspects of their activities that we consider to be particularly relevant to users in the Islamic community, we undertook an exploratory study of social disclosure practices of Islamic banks. The aim was to assess how far and in what specific areas Islamic banks were already making social disclosures. Given that the reporting practices of Islamic banks will depend on institutional factors such as whether banks are required to follow AAOIFI standards and whether they are required to pay *Zakah*, we tested whether these factors could explain differences in the extent of disclosure. Some disclosure studies (e.g. Nichols *et al.*, 1995; Collett, 2004) used a control group to control for selected variables not of interest to the researcher, though there are problems associated with the use of control groups, such as sample selection bias (Mosley, 1998). A potential control group for the present study would be a sample drawn from conventional banks based in Islamic countries. However, many of the disclosure items in our benchmark, such as *Zakah*, are unique to Islamic banks, so we would have no reason to expect any such disclosures from a control group. Hence we considered the use of a control group to be unwarranted.

Table 1

EXPECTED DISCLOSURES

Area	Items to be disclosed	AAOIFI	Comments
Sharia opinion	Report of *Sharia* Supervisory Board	Required	
Unlawful (*haram*) transactions	Nature of unlawful transactions	Required	
	Reasons for undertaking such transactions	Not required	
	The *Sharia* Board's view about the necessity of these transactions	Not required	
	The amount of revenue or expenses from these transactions	Required	
	How the bank disposed, or intends to dispose, of such revenues	Required	
Zakah (for banks required to pay it)	Statement of sources and uses of *Zakah*	Required	The statement required by AAOIFI includes *Zakah* and charity together
	The balance of the *Zakah* fund, and reasons for non-distribution	Required	
	Sharia Board attestation regarding the computation and distribution of the funds	Not required	
Zakah (for banks not required to pay it)	The amount due in respect of shares and deposits	Required	
	The *Sharia* Board's opinion regarding validity of computation	Required	
Quard Hassan	Sources of funds allocated to *Quard*	Required	Required by AAOIFI standards as a statement
	The amounts given to beneficiaries	Required	
	The social purposes for which the funds were given	Required	
	The policy of the bank in providing such loans	Not required	
	The policy of dealing with insolvent beneficiaries	Not required	

Charitable and social activities	The nature of charitable and social activities financed	Required	Required by AAOIFI as part of *Zakah* statement
	The amount spent on these activities	Required	
	The sources of funds used to finance these activities	Required	
Employees	The policy on wages and other remuneration	Not required	
	The policy on education and training of employees	Not required	
	The policy of equal opportunities	Not required	
	The policy on the working environment	Not required	
Late repayments and insolvent clients	The policy in dealing with insolvent clients	[See comment]	Required by AAOIFI only for *Murabaha* financing, and not other modes of finance
	The amount charged as late penalty, if any		
	The *Sharia* Board's opinion regarding the permissibility of imposing additional charges (such as late penalties)		
Environment	The amount and nature of any donations or activities undertaken to protect the environment	Not required	
	The projects financed by the bank that may lead to harming the environment	Not required	
Other aspects of community involvement	The bank's role in economic development	Not required	
	The bank's role in addressing social problems	Not required	

Sample and Data

The initial population for this study comprised all full-flagged[9] Islamic banks. These were identified from the International Directory of Islamic Banks and Institutions issued by the Institute of Islamic Banking and Insurance in London (IIBI, 2000). This directory identifies over 200 financial institutions around the world offering Islamic banking. In addition, other banks operating in Iran according to Islamic principles, not listed in this directory, were included in the initial population. In total, eighty-eight full-flagged Islamic banks were identified.

Evidence of social reporting was sought through an examination of annual reports. These documents are not the only means by which organizations communicate social information. Banks may produce and use other documents throughout the year containing social information, and may use advertising and their websites to convey social information. However, Gray *et al.* (1995b) point out that the annual report is not only a document produced regularly to comply with regulatory requirements, it is also central to the organization's construction of its own external image. We therefore consider only those social disclosures made in annual reports. A letter was sent to all the banks within the population requesting a copy of their annual report for year 2000 (data collection took place in late 2001 and early 2002 so 2000 was considered the latest year for which annual reports would be available). Banks failing to respond after twelve weeks were sent a follow-up letter. Of the thirty-three banks responding to the requests, four were excluded from the analysis,[10] leaving a sample of twenty-nine. A disclosure index based on our expectations as set out in the previous section this paper (as summarized in Table 1) was constructed. There is extensive use of disclosure indexes in the accounting literature (e.g., Chow and Wong-Boren, 1987; Cooke, 1989; Wallace and Naser, 1995; Inchausti, 1997; Depoers, 2000). Many of those authors adopt a decision usefulness approach and their disclosure indexes are weighted according to the perceived relative importance of each item. However, Barrett (1976) has noted that some arbitrariness is clearly inherent in the use of any weighted index. In addition, the decision usefulness approach is not a central concept for this article. For these reasons each item in our disclosure index is given the same weight. Following the approach used by Buzby and Falk (1979) and Inchausti (1997), items specifically disclosed were given a score of 1, items not disclosed were given 0, and items disclosed in ambiguous terms or in a less specific way were given 0.5. Since some items are not applicable to some banks (e.g., some banks are required by law to pay *Zakah* while others are not), the disclosure index was constructed as a ratio of the actual score to the maximum possible value for each bank (28 for banks required to pay *Zakah*, otherwise 27).

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[9] These are banks that aim to operate on a fully Islamic basis. Many banks now offer 'Islamic windows', whereby they are prepared to undertake financing on an Islamic basis for particular clients. However, these banks mainly operate according to standard Western banking practices and are thus not considered to be Islamic banks for the purposes of this research.

[10] Those banks are: Bank Mellat Iran (no report for year 2000), Development Bank of Brunei (no report for year 2000), Islamic Development Bank (non profit seeking bank), Bank Tejarat Iran (incomplete annual report was received).

About half of our expected disclosures are required by AAOIFI, and eleven of the twenty-nine banks studied (38 per cent) claim to follow AAOIFI standards. AAOIFI disclosure requirements stress social aspects in many areas, so an overlap between our disclosure benchmark and the AAOIFI disclosure requirements is to be expected. However, in this study we are not primarily investigating compliance with standards; rather, our main concern is whether Islamic banks disclose relevant information based on the moral responsibility that they accept through their claim to follow Islamic principles.

To measure and compare the quantity of social disclosures among the banks studied, a content analysis was also undertaken. Content analysis has a strong foundation in the social disclosure literature (e.g., Ingram, 1978; Ingram and Frazier, 1980; Freedman and Jaggi, 1982; Guthrie and Parker, 1989; Zéghal and Ahmed, 1990; Gray *et al.*, 1995a; Buhr and Freedman, 2001). A checklist instrument describing the criteria for identifying disclosures as social disclosures that come within the nine categories summarized in Table 1 was designed in order to codify the qualitative information contained in the annual reports. Attempts were made to ensure that each definition was unambiguous and mutually exclusive of others to eliminate any overlapping of interpretations. Content analysis studies in the social reporting literature have adopted the number of words, sentences, and/or pages to measure the volume of disclosure. Williams (1999) observes that there is no overwhelming case in the theoretical literature for preferring any of these units of analysis to the others. Ingram and Frazier (1980, p. 617) advocate the use of number of sentences on the ground that 'a sentence is easily identified, is less subject to inter judge variations than phrases, classes and themes, and has been evaluated as an appropriate unit in previous research'. In comparing sentences to both words and pages Hackston and Milne (1996, p. 84) suggest that 'sentences overcome the problems of allocating a portion of a page, whilst also removing the need to account for, or standardize, the number of words'. For these reasons, we chose to analyse the number of sentences.

Results

The disclosure ratios and the results of the content analysis are set out in Table 2. This shows clearly that the extent of social disclosure by Islamic banks falls far short of our benchmark. The mean level of disclosure compared to our benchmark was 13.3 per cent. This mean conceals considerable variation in the extent of disclosure (the standard deviation was 9.0 per cent and the distribution is positively skewed). Those banks coming closest to meeting our benchmark were Jordan Islamic Bank in Jordan, First Islamic Bank in Bahrain and Al-Shamal Islamic bank in Sudan. However, banks such as Arab Albanian Islamic Bank in Albania and Al-Barakah Turkish Finance House disclosed none of the social disclosure items we expected.

The content analysis shows that, on average, Islamic banks provide twenty-five sentences that can be considered as social disclosures according to the categories described in Table 1. Again, the distribution is positively skewed, with a standard deviation of twenty-two sentences. Faisal Islamic Bank, which provides audited

TABLE 2

LEVEL OF DISCLOSURE AND THE RESULTS OF CONTENT ANALYSIS

Bank	Country	Zakah	AAOIFI in use	Level of disclosure %	Number of sentences
Jordan Islamic Bank	Jordan	No	Yes	35.2	60
Islamic Arab International Bank	Jordan	No	No	14.8	39
Tadamon Islamic Bank	Sudan	Yes	Yes	9.3	17
Animal Resources Bank	Sudan	Yes	Yes	16.7	52
Farmers' Commercial Bank	Sudan	Yes	Yes	11.1	18
Bank of Khartoum	Sudan	Yes	Yes	3.7	4
Al-Shamal Islamic Bank	Sudan	Yes	Yes	25.9	27
Export Development Bank of Iran	Iran	No	No	3.7	3
Bank of Industry and Mine	Iran	No	No	7.4	28
Bank Keshavarzi	Iran	No	No	7.4	15
Al Barakah Bahrain	Bahrain	No	Yes	18.5	34
First Islamic Bank	Bahrain	No	Yes	25.9	40
Investors' Bank	Bahrain	No	Yes	11.1	19
ABC Islamic Bank	Bahrain	Yes	Yes	23.2	31
Al-Shamil Bank	Bahrain	No	Yes	24.1	29
Dubai Islamic Bank	U.A.E.	Yes	No	14.3	45
Abu Dhabi Islamic Bank	U.A.E.	No	No	13.0	26
Arab Palestinian Islamic Bank	Palestine	No	No	0.0	0
Palestine Islamic Bank	Palestine	No	No	14.8	13
Faisal Islamic Bank	Egypt	Yes	No	22.2	91
Albaraka Turkish Finance House	Turkey	No	No	0.0	0
Al-Meezan Investment Bank	Pakistan	No	No	5.6	10
Kuwait Finance House	Kuwait	Yes	No	14.3	16
Islami Bank Bangladesh	Bangladesh	Yes	No	23.2	61
Qatar Islamic Bank	Qatar	No	No	7.4	13
Arab Albanian Islamic Bank	Albania	No	No	0.0	0
Albaraka Bank	South Africa	No	No	16.7	9
Bader Forte Bank	Russia	No	No	11.1	18
Bamis Albaraka Bank	Mauritania	No	No	3.7	3

financial statements for *Zakah* funds as part of its annual report, had the largest volume of social disclosures. Jordan Islamic Bank also provides a large amount of social disclosures. This is probably due to the emphasis placed on social issues in the Act that originally regulated this bank, and to the personal initiatives of the bank's managers (Maali, 2005). Against this, the Islamic Bank in Albania and Al-Barakah Turkish Finance House do not provide any social disclosures in our categories in their annual reports. The other bank failing to provide social disclosures was

TABLE 3

TESTING FOR DIFFERENCE IN NUMBER OF SENTENCES

Item	No.	Number of sentences		*t*-statistic (significance: *p*-value, two-tailed)	Mann-Whitney *U* (significance: *p*-value, two-tailed)
		Mean	Median		
Banks following AAOIFI standards	11	30.1	29.0	1.02	56.50
Banks not following AAOIFI standards	18	21.7	14.0	(0.32)	(0.36)
Banks operating in full Islamized economy	9	19.3	17.0	−0.92	75.00
Banks not operating in full Islamized economy	20	27.3	22.5	(0.36)	(0.48)
Banks required to pay Zakah	10	36.2	29.0	2.19	52.50
Banks not required to pay Zakah	19	18.9	15.0	(0.04)	(0.05)

Arab Palestinian Islamic Bank. This bank was affected by the very difficult economic situation in the occupied territories in Palestine in 2000 (the year for which annual reports were analysed), and the bank provided a summarized annual report which only included the audited financial statements.

We have already mentioned that many of our expected social disclosures are required by AAOIFI standards. Eleven of the banks in the sample follow AAOIFI standards. The mean number of sentences relating to social disclosures provided by these banks was 30.1 compared to 21.7 sentences disclosed by banks that do not apply AAOIFI standards. Using the *t*-test for the difference of means, the difference is not statistically significant (see Table 3). Because the distribution of number of sentences is significantly skewed, the Mann-Whitney rank sum test was also carried out. The value of the Mann-Whitney *U* statistic was not large enough (at a 95 per cent confidence level) to allow us to conclude that the difference between the number of sentences disclosed by banks that claimed to follow and did not claim to follow AAOIFI standards was significant. It is worth mentioning that many of the banks that claim to adopt AAOIFI standards do not in fact comply with the disclosure requirements for items discussed in this paper. For example, these banks in general tend to avoid mentioning the nature and the amount of unlawful (*haram*) transactions: Of the twelve banks that mentioned the disposal of unlawful revenues, only one commented on the nature of these revenues despite the requirement of AAOIFI in this regard. The banks may consider that such disclosure will have an adverse effect on their image. The banks in Sudan, which claim to apply AAOIFI standards according to the Sudanese central bank's requirements, tend not to provide disclosures about *Zakah* (as required by AAOIFI) since *Zakah* has to be paid to government agencies. No bank in our sample discloses its policy for dealing with insolvent clients.

We expected that Islamic banks operating in economic systems that are not fully Islamized systems would provide more social disclosures—as defined by the categories in Table 1—than banks operating in fully Islamized economies. This is because Islamic banks operating side by side with conventional banks in non-Islamized economies need to demonstrate to the community that they follow Islamic principles with their emphasis on social issues, while banks operating in fully Islamized economies should have nothing to prove. The mean volume of social disclosures provided by banks operating in Islamized economies (Sudan, Iran and Pakistan) is nineteen sentences, while the average for banks operating in non-fully Islamized economies was twenty-seven sentences. However, the difference is again not statistically significant.

Ten of the banks studied are required to pay *Zakah*, either by law (such as banks in Sudan) or by their articles of association (such as Faisal Islamic Bank in Egypt). Banks required to pay *Zakah* provide on average thirty-six sentences of social disclosures, while banks not required to pay *Zakah* disclose on average nineteen sentences. The difference is statistically significant at 95 per cent confidence level. The non-parametric Mann-Whitney rank sum test supports this inference.

Content analysis by category (see Table 4) shows that none of the Islamic banks studied makes disclosures regarding the environment (possibly environmental issues were not seen as relevant by financial institutions), and there were no disclosures relating to the treatment of insolvent clients. The amount and nature of revenue from unlawful transactions are disclosed only by banks following AAOIFI (as a note in the *Sharia* Supervisory Board's report), and not all the banks claiming to follow AAOIFI standards disclosed this information in the notes to financial statements. Despite the importance of *Quard Hassan* for Islam, only two banks provided detailed information and a further two banks made a

Table 4

SOCIAL DISCLOSURES BY CATEGORY

Category	Banks disclosing		Number of sentences (disclosing banks only)	
	Number	%	Mean	Maximum
Sharia opinion	21	72	11.0	20
Unlawful (*haram*) transactions	12	41	2.0	6
Zakah (for 10 banks required to pay it)	9	90	13.3	66
Zakah (for 19 banks not required to pay it)	5	26	3.8	5
Quard Hassan	4	14	1.5	4
Charitable and social activities	12	41	5.6	13
Employees	18	62	7.2	21
Late repayments and insolvent clients	0	0	0.0	0
Environment	0	0	0.0	0
Other aspects of community involvement	14	48	7.6	27

brief statement about this Islamic loan. Although AAOIFI requires Islamic banks to provide a statement of *Quard Hassan* as part of a full set of financial statements, none of the eleven banks claiming to follow AAOIFI standards did this. Eighteen banks (62 per cent) provided information regarding employees, though the level of detail differs. Some banks had only a single sentence while other banks (such as Animal Resources Bank in Sudan) provided a relatively large number of sentences regarding employees.

The item in our benchmark disclosed by most banks was the report of the *Sharia* Supervisory Board, where twenty-one banks (72 per cent) provided such a report. Banks in Iran and Pakistan, where the economic system is fully Islamized but AAOIFI standards are not required, do not provide a *Sharia* Supervisory Board report. This can be compared to Sudan (also a fully-Islamized economy), where banks provide such a report according to AAOIFI requirements. However, not all the banks in Sudan follow the form of report suggested by AAOIFI: Banks audited by the government general auditor, such as Khartoum Bank and Animal Resources Bank, provide a summarized *Sharia* audit report. These banks are less likely to follow the detail of AAOIFI standards. Overall, banks disclosing a substantial amount of social information (measured by number of sentences) tend to achieve this by providing extensive disclosure in a small number of categories rather than less detailed disclosure across a wider range of categories.

CONCLUSIONS AND IMPLICATIONS

This study applied an Islamic perspective to develop a benchmark for social reporting by Islamic banks. Contrary to our expectations, the empirical findings suggest that social issues are not of major concern for most Islamic banks. This may in part reflect the fact that most Islamic banks operate in less developed economies where social concerns, especially as regards issues such as the environment, may be given less importance (Belal, 2000). However, Muslims in the countries where Islamic banks operate are likely to have a high expectation of the banks' social role. This has been recognized by the management of some Islamic banks, such as Jordan Islamic Bank,[11] and this bank provides a broader range of social disclosures compared to most other Islamic banks in our sample.

We found that banks required to pay *Zakah* provide more social disclosures than banks not required to do pay *Zakah*. However, much of the incremental social information for those banks is about *Zakah* itself: As *Zakah* is one of the five pillars of Islam, banks that pay *Zakah* are, not surprisingly, more likely to want to show how they comply with this basic Islamic principle. Although the Islamic banks operating in non-fully-Islamized economies make more social disclosures than others, the difference in volume of disclosure was not statistically significant. Similarly, banks following AAOIFI standards tend to provide more social disclosures than non-compliant banks, though the difference in volume of disclosure was not found to be statistically significant. Both these results may reflect the relatively small sample size (as only one-third of full-flagged Islamic banks could be investigated), and further research with a larger sample may be worthwhile.

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[11] This observation is based on interviews carried out by the first author in Jordan Islamic Bank in 2002.

Most of the Islamic banks publish the report of the *Sharia* Supervisory Board, reflecting the importance of the report for Islamic banks as providing the necessary assurance for the users of financial statements that the bank adheres to Islamic principles. Banks may consider that provision of the report is sufficient for users, avoiding the need for detailed disclosure in the annual reports. Interestingly, banks in Iran, where a full Islamized economy is in operation, do not provide such a report because the banks are required by law to follow Islamic principles.

Islamic banks, in general, do not disclose information about activities that may attract criticism, such as unlawful (*haram*) transactions and their policy for dealing with insolvent clients. Some Islamic banks charge clients who are late in repaying their loans penalties that may take the form of interest, which is strictly prohibited by Islam. None of the banks in our sample disclosed how they deal with insolvent clients. This suggests that Islamic banks may be avoiding issues affecting their Islamic image, while on the other hand they provide more disclosures regarding their charitable activities and their involvement in society. Thus, social disclosures are used by the banks to construct a positive Islamic image, because a 'negative corporate image can have a serious economic implication for organizations' (Buhr and Freedman, 2001, p. 294). This represents a conundrum as the principles of full disclosure and accountability of individuals and organizations to God and the Islamic community require Islamic banks to disclose all information deemed important from the Islamic perspective for people in the societies where they operate, and not only information that would help in constructing a beautiful Islamic image.

As a religion and a culture, Islam presents an absolute ethical code, *Sharia*, which imposes strong social obligations on Muslim individuals and organizations. Islamic organizations, such as Islamic banks, are accountable to God and to the communities in which they operate and have a duty of truthful disclosure. Based on these principles, we have developed a benchmark for social disclosure by Islamic banks and investigated the extent to which Islamic banks are providing social disclosures at present. The evidence suggests that, with a few exceptions, Islamic banks have some way to go in meeting the expectations of the Islamic community.

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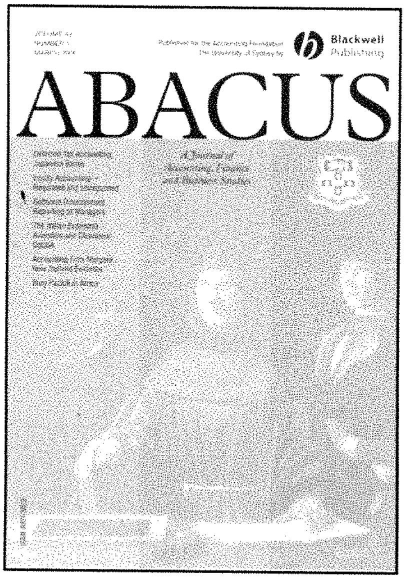

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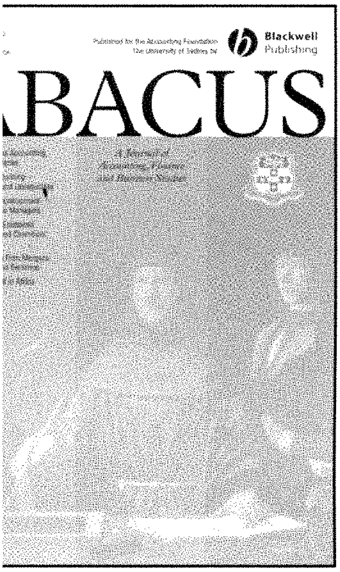

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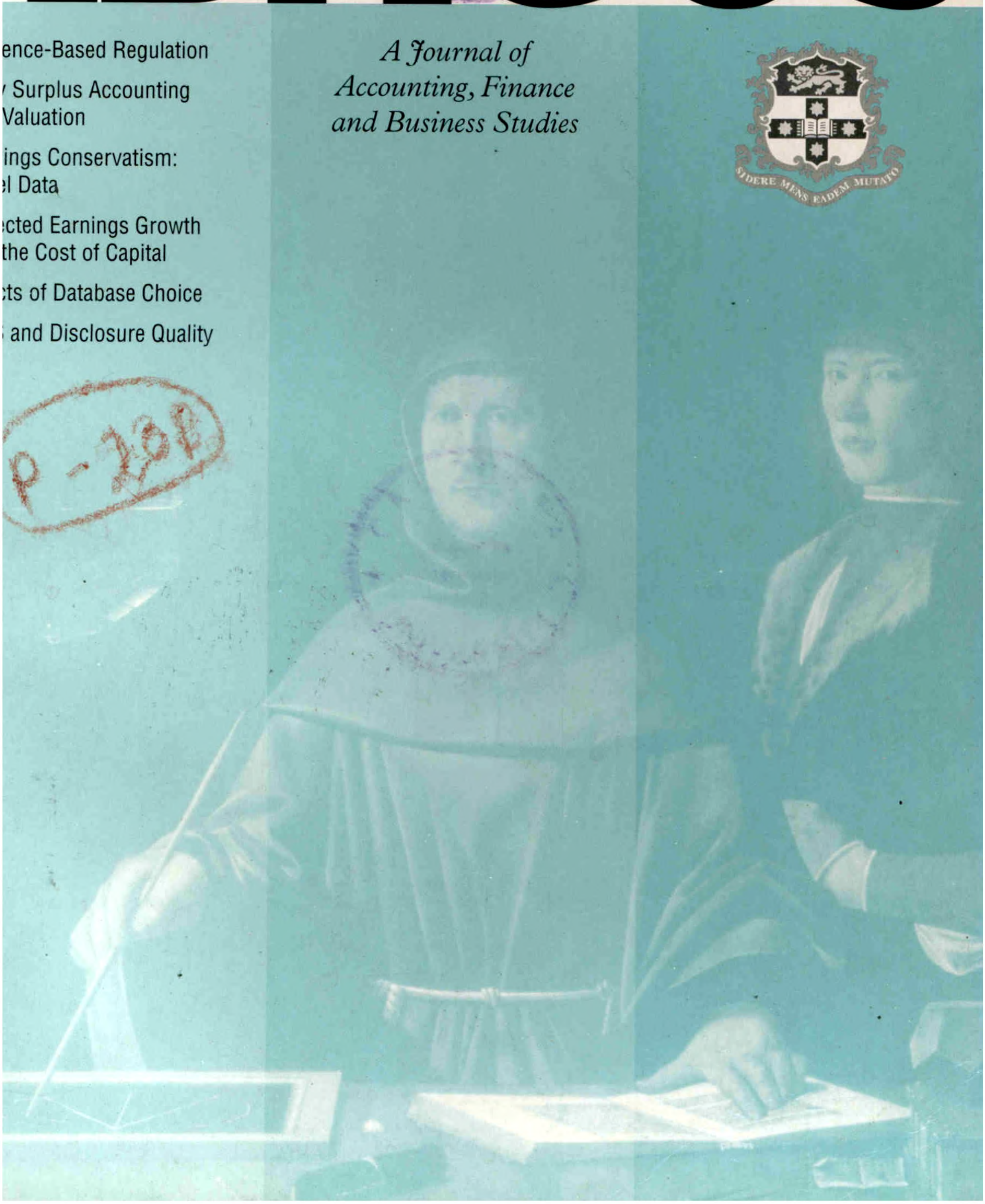

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EDITORIAL

The material in the current issue represents a first for *Abacus*. It contains six papers and related discussions from the special forum on International Financial Reporting held at the University of Sydney in December 2005. Those papers are published in a joint September and December 2006 issue. The significance of the papers is aptly captured in the Introduction by Guest Editor Stuart McLeay. The transition to an IFRS regime which began (officially) in 2005 has already produced ructions in many countries. The challenging evidence reported in this joint issue is part of the evaluation process, over possibly a quite lengthy period, of the costs and benefits associated with this new international reporting regime.

The papers are the equivalent in length of two normal issues. It is not envisaged that this will be an ongoing feature of *Abacus*, but as with other leading journals, sometimes it is better to have a joint issue publication than to split the subject matter across two separate issues.

As this issue is being finalized, many around the world are assessing the guilty verdicts against former Enron officers, Chairman and CEO Kenneth Lay (since deceased) and CEO Jeffrey Skilling. Sentencing of Skilling is scheduled to take place in October 2006. Arguably, these verdicts are instances of regulators placing more significance on achieving, *ex-post*, heads on poles than looking at *ex ante* ways to improve the effectiveness of their investor protection regimes.

In that sense, they are *déjà vu*.

In Australia a year earlier its corporate regulator ASIC and financial sector regulator APRA were at pains to stress their 'success' in getting convictions against several officers of HIH (Australia's 'Enron') for various offences related to their actions. This was contiguous with Australia's Westpoint causing embarrassment about the ineffective nature of Australia's system of investor protection.

In previous decades in (say) the U.S. following collapses such as those at Equity Funding, National Student Marketing and Penn Central in the early 1970s, similar 'successes' were achieved. But what *has* changed this time is that the length of the sentences has increased. At WorldCom, CEO and Chairman Bernie Ebbers was sentenced to twenty-five years gaol; at Tyco, Kowslowski received twenty years. And there are other instances of lengthy sentences being imposed.

The effectiveness of current regulatory and governance systems in protecting investors is problematic. In particular, how effective are, or will be, the plethora of reforms regulators and officers have introduced as a result of the spate of *unexpected* corporate collapses post-2000, especially in respect of the financial reporting system? That system, as part of the corporate governance regime, has the function of providing transparent, serviceable data to guide investors in assessing, in an informed manner, multiple risk/return opportunities. Arguably, it does not achieve this sufficiently well at present.

One could be excused for thinking that new, specifically accounting and auditing measures, such as the move from requiring compliance with national accounting standards to compliance with IFRSs and the move to mandate compliance with international IFAC auditing standards, will prove as ineffective as previous initiatives. This is especially so where, in respect of auditing, the emphasis continues to be on, as Bartholomeusz (2006) aptly notes, the 'integrity of the audit process' rather than improving the 'effectiveness of the audit opinion'. While this observation was made in relation to recent Australian accounting/auditing *causes celebres*, like Westpoint, it is equally applicable to the post-Enron, post-WorldCom and post-HIH system reforms and the regulatory heads-on-poles 'successes' in the U.S. and elsewhere.

Turning to administrative matters pertaining to *Abacus*, the recent ISI Social Science Citation Index listing (see Editorial, June 2006) provides an ideal opportunity to thank publicly and personally all those authors who have supported the journal in earlier and recent years. It also allows me an opportunity, on behalf of the Editorial Board, to express my thanks to the substantial *ad hoc* refereeing pool. Year after year, these reviewers have provided excellent administrative support to ensure the effective running of the journal. Their efforts were instrumental in *Abacus* gaining ISI listing, effective from January 2005.

Below are lists of *ad hoc* reviewers who have provided services to assist in the administration of *Abacus* over the last two years.

AD HOC REFEREES, *ABACUS*—2004

Adams, C
Arthur, N
Ballas, A
Barton, A
Baxter, J
Bloom, M
Bradshaw, M
Bromwich, M
Burritt, R
Carmona, S
Dawson, P
Edwards, P
English, L
Fleischman, R
Freeman, M
Frino, A
Frost, G
Funnell, W
Galassi, G
Gallery, N
Geiger, M
Georgiou, G
Giner, B
Givoly, D
Gray, R
Hartmann, F
Heaney, R
Hogan, W
Hopper, T
Houghton, K
Ingram, R
Langfield-Smith, K
Largay, J
Lee, P
Loftus, J
Lonergan, W
Lucas, U
Luckett, P
Malmi, T
McEnroe, J
McKeown, J
McKinnon, J

AD HOC REFEREES, *ABACUS*—2004

Milne, M
Mozes, H
Nagy, J
Napier, C
Nelson, T
Newberry, S
O'Connell, B
Palmrose, Z
Partington, G
Perera, H
Ponemon, L
Poullaos, C
Psaros, J
Richardson, S
Rouse, P
Saemann, G
Seethamraju, R
Shields, M
Simnett, R
Srivastava, R
Staubus, G
Staunton, J
Stolowy, H
Trowell, J
Van der Laan, S
Vangermeesch, R
Wagenhofer, A
Walker, R
Willett, R
Wyatt, A
Zimmer, I
Ziss, S

AD HOC REFEREES, *ABACUS*—2005

Barton, A
Bloom, M
Brailsford, T
Bromwich, M
Bushman, R
Clarke, T
Debreceny, R
DeZoort, T
Ding, Y
Dowling, C
Faff, R
Firth, M
Frost, G
Galassi, G
Gallery, N
Giner, B
Gordon, I
Gul, F
Harris, G
Heaney, R
Houghton, K
Islam, A
Jaggi, B
Lapsley, I
Liermann, F
Lonergan, W
Lymer, A
McKeown, J
McKinnon, J
Morris, R
Noguchi, M
Partington, G
Peat, M
Perera, H
Pickering, J
Richard, J
Richardson, S
Rouse, P
Stark, A
Staunton, J
Sterling, R
Stevenson, M
Stolowy, H
Tan, Q
Tarca, A
Tippett, M
Trowell, J
Vafeas, N
Walker, R
Weetman, P
Willett, R
Zimmer, I
Ziss, S

Not surprisingly, in appreciation of their services, several of the above have now joined the enlarged Editorial Board of *Abacus*.

This issue contains the second, in the series of special forum issues, as *Abacus* moves in 2006 from three to four issues per annum. The first, which appeared in Vol. 42, No. 2, entailed an exploration of the 'principles v. rules' debate currently engaging the minds of standards setters, practitioners and academics worldwide. The current forum examines the possibility of evidence-based research assisting accounting standards setters as they contemplate more prescriptive, often legally endorsed, standards on practice. Articles describe the way many European countries and the U.S.A. are coping with the convergence to a more mandated international financial reporting regime. A fuller description of those articles appears in the Forum Introduction by Stuart McLeay.

Graeme Dean
The University of Sydney
September 2006

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STUART MCLEAY

FORUM: INTERNATIONAL FINANCIAL REPORTING

Introduction

The presentation by Willem Buijink that opened the Abacus Forum on International Financial Reporting in Sydney in December 2005, and which is now published at the beginning of this issue of *Abacus*, consists of a well-timed call for regulation to be based on the best scientific evidence that is currently available about accounting. In his paper, entitled 'Evidence-Based Financial Reporting Regulation', Buijink emphasizes that accounting regulation around the world cannot be described as 'evidence-based' in the way that medical research might be. Furthermore, the empirical literature on the economic consequences of disclosure regulation, although growing quickly, is still fairly limited. In the light of these comments, it is hoped that the papers presented at the Forum will add to the evidence that is available to regulators and other policy makers. Indeed, a specific aim of this Forum was to bring together research studies that have been conducted in an internationally comparative setting, on this occasion by contributors based in Europe, and in doing so to shed further light on the findings of other recently published work on international financial reporting.

For instance, concurrent research published in the U.S. suggests that foreign firms are slower to recognize losses and are more likely to smooth their earnings than their U.S. counterparts (Lang *et al.*, 2006). More specifically, these authors infer that foreign firms cross-listing in the U.S. and reconciling to U.S. GAAP, or preparing their primary accounts in accordance with U.S. GAAP, manage their earnings to a greater extent than U.S. firms. This finding is in line with the notion that firms domiciled in jurisdictions where investor protection is deemed to be weaker than in the U.S. are less likely to produce transparent financial reports. We may ask, however, whether it is reasonable to generalize from such findings, and indeed whether the generalization holds up to further scrutiny.

The lack of transparency in accounting statements is the subject of the first paper presented at the Abacus Forum, where the research study is designed to evaluate the usefulness of accounting numbers in performance measurement in the U.S. and three key member states of the European Union (France, Germany and the U.K.). The paper on 'Dirty Surplus Accounting Flows and Valuation Errors', by Helena Isidro, John O'Hanlon and Steven Young, explores the association between violations of the clean surplus relationship (i.e., where knowledge of net income, dividends and new capital contributions is insufficient to reconcile the opening and closing amounts of shareholders' equity) and valuation errors that arise from the application of the residual income valuation model. The dirty surplus items identified include goodwill write-offs, merger accounting effects, consolidation scope adjustments, currency translation differences, asset revaluations, unrealized gains and losses on marketable securities and derivative instruments, minimum pension liability adjustments, subsidies, regulated provisions, prior-year adjustments, and changes in accounting policy resulting from new accounting regulations. The authors show that errors in accounting-based valuation are associated with certain additional reconciling items that are not incorporated in net income in both Europe and the U.S., with results that are in fact more convincing for the U.S.

The second paper addresses the issue of earnings timeliness. The authors, Christos Grambovas, Begoña Giner and Demetris Christodoulou, in 'Earnings Conservatism: Panel Data Evidence from the EU and the U.S.', provide stronger evidence than has previously been obtained concerning the more timely recognition of losses than gains, based on econometric procedures that account for variability at the firm level. A key finding is that, when firm-specific effects are modelled, the estimated responsiveness of earnings to the fall in market price is substantially higher than is generally reported, almost the one-for-one relation that might be assumed under prudential provisioning. Moreover, the authors show that there is little evidence of significant differences in the asymmetric timeliness of earnings between the U.S. and the EU. In fact, during the period examined, accounting has become more conservative in both locations, which suggests that a common factor influencing firms worldwide provides a better explanation of accounting change than differences between local institutional environments. Based on the evidence provided by these first two empirical papers, we might question the broad generalization that the accounting reports issued by firms domiciled in the U.S. demonstrate superior quality.

In other recent cross-national studies, it can be seen how the demand for conservative accounting can be expressed as a function of financial reporting incentives created by the institutional structures surrounding the firm (Raonic *et al.*, 2004; Bushman and Piotroski, 2006). That is, securities laws, the judicial system and financial market conditions combine to create incentives that can influence behaviour and shape the properties of reported accounting numbers. Given that the managers of firms are likely to have differential incentives in using the discretion afforded by accounting standards, related factors such as differences in the ownership concentration of the firm might account for variation in the speeds of recognition of gains and losses. In another concurrent study, Burgstahler *et al.* (2006) show how these capital market pressures and institutional factors shape firms' incentives to report earnings that reflect economic performance. These authors have exploited the fact that, within the European Union, privately held corporations face the same accounting standards as publicly traded companies, and they show that private firms exhibit higher levels of earnings management, and also that they respond in a different manner to institutional factors, such as outside investor protection and capital market structure. Thus, although the authors report that country-level factors such as strong legal systems are associated with less earnings management overall, it is evident that the impact of capital market forces and the institutional environment depend on the charateristics of the individual firm.[1]

The third Forum paper, 'Expected Earnings Growth and the Cost of Capital', co-authored with Christina Dargenidou and Ivana Raonic, considers country-level and firm-level effects in the relation between the cost of equity capital and earnings expectations, again in a context where the properties of accounting that determine earnings vary across different regulatory regimes. Based on firm level transparency and disclosure rankings provided by Standard and Poor's, this paper reveals how the quality of financial reporting affects the implied cost of equity under different GAAP. The study focuses solely on the European setting, where different GAAP regimes have been in force up to this year, albeit in the presence of the gradual harmonization of the underlying legal framework. Nevertheless, the pre-adoption of internationally recognized accounting standards by a number of firms has anticipated the new requirement in the EU for International Financial Reporting Standards. On the basis of estimates of the cost of equity implied by analysts' earnings forecasts, the paper provides evidence that switching to IFRS could have a short-lived impact on capital markets, and that market integration may have already contributed to mitigating the economic consequences of accounting diversity.

Again, we might consider briefly the findings of concurrent research in this context. Employing several models to estimate the firm's implied or *ex ante* cost of capital, including the expected abnormal earnings model, Hail and Leuz (2006) show that firms from countries with more extensive disclosure requirements, stronger securities regulation, and stricter enforcement mechanisms have a significantly lower cost of capital. However, they also find that the cost of capital effects of strong legal institutions becomes substantially smaller as capital markets become globally more integrated.[2] Francis *et al.* (2005) point to the possibility of further interactions, as differences in legal and financial systems can affect observed disclosure levels, but, more importantly perhaps, they demonstrate how voluntary disclosure incentives are instrumental in lowering the cost of external financing. That is, regardless of location, firms in industries with greater external financing needs have higher voluntary disclosure levels, and an expanded disclosure policy for these firms leads to a lower cost of capital.[3]

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[1] Maijoor and Vanstraelen (2006), who investigate earnings management in the European audit context, arrive at a different conclusion altogether. While they find that a stricter audit environment reduces the magnitude of earnings management, this is irrespective of both the type of auditor employed by the firm and the company's exposure to international capital markets.

[2] See also Kang (2005) and Frost *et al.* (2006) on the accounting implications of market integration.

[3] Daske (2006) provides evidence for German firms that adopted International Financial Reporting Standards or U.S. GAAP between 1993 and 2002, that the cost of equity capital appeared to increase and not decrease. With regard to analysts' forecasts, Barniv *et al.* (2005) predict that analysts with superior ability and resources will outperform their peers in markets where appropriate incentives exist. They show that, when the demand for earnings information is reduced because of weaker corporate governance mechanisms and lower-quality financial reporting, even those analysts with superior ability are less consistent in providing superior forecasts.

An important issue underlying these cross-national comparisons has been identified by Easton (2006), who examines in detail the various methods used to estimate the cost of capital. Differences between the growth rates implied by available data and the growth rates assumed by researchers seriously affect the estimates of the expected rate of return and. therefore, may lead to spurious inferences. Other aspects of concern are data availability and their comparability, which are major obstacles that researchers have to face when carrying out international empirical studies in accounting. At the Abacus Forum, Juan Manuel García Lara, Beatriz García Osma and Belén Gill de Albornoz Noguer, in their paper entitled 'Effects of Database Choice on International Accounting Research', presented an analysis of the coverage offered by a number of well-known sources of corporate accounting and finance data in Europe (DataStream, Global Vantage, Company Analysis, Worldscope, Thomson Financial, Extel Financials and BvD Osiris). By estimating the same straightforward price to earnings and book value relation on samples drawn from each of the databases, they are able to attribute the main differences observed in the regression coefficients to sample variation across the databases. When the authors restrict samples to firms that are included in all databases, differences in coefficients are still evident although much less pronounced. This study should ring alarm bells concerning the general reliance on commercial datasets in international research into financial reporting.

The final paper in this issue, by Holger Daske and Günther Gebhardt, concerns 'International Financial Reporting Standards and Experts' Perceptions of Disclosure Quality'. The authors address recent research that points to a potential 'quality' shortfall in financial statements prepared under IFRS standards, at least in the absence of strong enforcement mechanisms and favourable reporting incentives. The study is based on disclosure quality scores obtained from detailed analyses of the annual reports of Austrian, German and Swiss firms, which have been carried out by panels of accounting experts in each of the three countries. The evidence reported here shows that disclosure quality has increased significantly under IFRS, a finding that applies not only to firms that have adopted IFRS in order to meet stock market requirements, but also to those firms that have done so on a voluntary basis.

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WILLEM BUIJINK

Evidence-Based Financial Reporting Regulation

In this introductory paper at the Abacus Forum on International Financial Reporting, I contend that it is difficult to argue that financial reporting and disclosure regulation around the world is evidence-based. Anecdotes and references to more systematic research and surveys of research are used to demonstrate this. 'Evidence-based' is a term that I borrow from medicine. There the term stands for basing medical patient care and health policy choices on the 'current best [scientific] evidence'. I contend that financial reporting and disclosure regulation (and perhaps practice as well) are currently not evidence-based in the specific sense of not being based on the current best scientific evidence available about accounting and auditing. Next I discuss possible causes of this state of affairs and look at future possibilities for financial reporting and disclosure regulation to become (more) evidence-based. The discussion ends by providing a link with the papers that follow in this issue.

Key words: Disclosure; Europe; Evidence; Financial reporting; Regulation.

In the Netherlands, the oversight of financial markets is now the task of the recently created Financial Markets Authority (the Dutch acronym for which is AFM). The AFM has a number of tasks, one of which is the oversight of auditing in the Netherlands. In a public talk about auditing in Fall 2005, one of the members of the executive board of the AFM asserted the following: (a) that auditing is the product of regulatory fiat, and (b) that providing Management Advisory Services (MAS) to an audit client will seriously impair the quality of the audit (Koster, 2005). As a consequence of the second assertion the AFM director concluded that combining MAS and audit for the same client should no longer be allowed.

The first assertion is uninformed. In the Netherlands there was no mandatory audit for listed or non-listed firms until 1970. In Buijink (1992, p. 20), I surveyed the existing evidence on voluntary auditing of listed firms before 1970. This showed that by 1926, 48 per cent of firms listed in Amsterdam were audited. In 1947 this percentage had risen to 72 per cent, and by 1965 to 84 per cent. Moreover, the Dutch audit profession dates from 1895. By 1968 there were 350 audit firms in the Netherlands and more than 1,300 active auditors working for those firms (Maijoor *et al.*, 1995, p. 177). All this can be observed before the advent of the mandatory audit.

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The second assertion is also problematic. In a recent survey paper, Francis (2004, p. 357), writing about empirical research on the potential negative impact of MAS (and non-audit services in general) on audit quality, observes: 'At this stage one would have to say that the evidence [about a negative impact] is inconclusive'.

At a European Accounting Association annual congress in the late 1990s, during a symposium on the IASC (the International Accounting Standards Committee, now known as the International Accounting Standards Board, IASB), one of the participants, a regulator, delivered an accolade to the blessings of international accounting standards, and in so doing asserted that the use of higher quality international standards, instead of local GAAP, would reduce the cost of capital of adopting firms.

I am sorry to have to admit that this comment went unopposed, as there was still very little empirical evidence concerning the impact of the choice between international and local GAAP on the cost of capital. Indeed, the first empirical research paper focusing on this aspect (Leuz and Verrechia, 2000) had not appeared. Also, in my recent article with Rick Cuijpers (Cuijpers and Buijink, 2005), we find that, in 1999, of the European listed firms that were examined, only 4.5 per cent voluntarily chose to use the IASB's international financial reporting standards in their primary financial statements, benefits such as a lower cost of capital apparently outweighing costs. Moreover, another recent paper (Lambert *et al.*, 2005) states in its first paragraph: 'there is surprisingly *little theoretical work* [italics added] on the hypothesized link [between accounting information and the cost of capital]'.

In a review article, Healy and Palepu (2001) survey empirical research on the question of why financial reporting and disclosure need to be regulated in capital markets. They conclude that 'surprisingly little is known' about why this is the case (p. 414). More recently, Bushee and Leuz (2005, p. 236), say something similar: 'This paper contributes to a *fairly limited* [italics added] empirical literature on the economic consequences of disclosure regulation'.

Indeed, in over forty years that followed Stigler's (1964) seminal work I am aware of only a handful of articles, of which Bushee and Leuz (2005) is one, that have looked directly at the measurable net economic benefits of financial reporting and disclosure regulation. That is, more specifically, there are no more than eight articles that have estimated the net benefits of mandated financial reporting and disclosure regulation with the help of the 'the "scientific" method', as Stigler (1964b) says in his very funny reply to the critics of Stigler (1964a).

These research studies, all using U.S. data and focusing on SEC related mandatory firm financial disclosures and changes therein—Stigler (1964a, 1964b), Benston (1969, 1973), Jarrell (1981), Chow (1983), Simon (1989), Bushee and Leuz (2005), Greenstone *et al.*, (2006), and Daines and Jones (2006)—find some but not much evidence of beneficial effects of (changes in) mandated financial reporting and disclosure.

All this leads to two observations: (a) regulators of financial reporting and disclosure do not appear to use existing empirical scientific evidence in the design of regulation, and (b) it also appears that accounting researchers do not produce sufficient results and findings that are usable by regulators.

This suggests that financial reporting and disclosure regulation (including auditing regulation) currently fails to be evidence-based. The term 'evidence-based' is borrowed from medicine, as will become clear in the next section. After that, I will address the questions of (a) why, currently, there is no evidence-based financial reporting and disclosure regulation and (b) what future possibilities exist for such regulation.

EVIDENCE-BASED MEDICINE AND HEALTH POLICY

I borrow the term 'evidence-based' from medicine. Evidence-based medicine can be defined as 'the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients' (Sackett *et al.*, 1996). The term 'best evidence' means the best available evidence in peer-refereed medical research journals. Defining medical practice this way was first advocated in the late 1980s and has quickly swept across all sub-fields of medical practice. Evidence-based medical practice has also led to the reconsideration of government policy-making, by attempting to make health policy evidence-based as well.

WHY IS THERE NO EVIDENCE-BASED FINANCIAL REPORTING REGULATION?

It is not difficult to see the parallels here with accounting and auditing. Accounting and auditing practice is what accountants and auditors do. Accounting and auditing policy is the product of regulators in the fields of financial reporting, corporate disclosure and auditing. Thus, it is difficult to see why accounting and auditing practice and regulation should not also be evidence-based.

The extent to which the work of accounting and auditing practitioners is evidence-based is an interesting question in its own right. Here, however, I will focus on financial reporting and disclosure regulation.

My observation earlier was that the regulation of financial reporting and disclosure is currently not based on peer-refereed scientific evidence. Regulators do not appear to use, or to be aware of, scientific evidence that can be used as the basis for regulatory decisions (which could also be interpreted as a decision not to regulate). Francis (2004, p. 359) reaches the same conclusion with regard to recent auditing regulation in the U.S. As does Romano (2005) in a blistering attack on the U.S. Sarbanes-Oxley Act (SOX) of 2002. She discusses each of the substantive SOX mandates and finds that none of them can be seen as being based on scientific evidence. Why is this so?

Francis (2004, p. 359) explains the lack of input from the academic accounting community into the regulatory process as stemming from the newer tradition of positive accounting research, which refrains from drawing policy conclusions. He also argues that it stems from the dominance of the Chicago School of Economics, whose views are hostile to government regulation, among leading academic accounting researchers. I do not agree. With regard to the first explanation, it is the lack of use by regulators of existing research that is the issue, not the intent of the researchers. With regard to the second explanation, one should add that the hostility towards regulation shown by the adherents to the Chicago School, and Stigler (1964) is a prime example, is in effect evidence-based. Presumably, Stigler (1964) would also have accepted a finding that would have been favorable to the SEC Acts. Indeed, Ronald Coase, one of the key Chicago School economists,[1] says this in an interview: 'I don't reject any policy without considering what its results are. If someone says there is going to be regulation, I don't say regulation will be bad. Let's see.' Also, there is no need to blame Chicago specifically. In fact, most economists trust markets more than regulation, and many accounting researchers are themselves applied economists—on this, see Walker (2004). This prior will only be changed by within-economics developments. In fact, on the issue of the economics-based desirability of regulation, economics itself indeed appears to be changing. This may make the view that regulation might prevail over the market more acceptable. The same might also apply in accounting research. I will talk more about this 'shift' in the last section.

On the other hand there may simply not be enough relevant scientific accounting and auditing evidence available, both with respect to theoretical insights and to empirical evidence. This would make it difficult for financial reporting and disclosure regulators to work in an evidence-based manner. The examples that I gave earlier, relating to a lack of evidence about the cost of capital effect of mandated accounting and of financial reporting and disclosure regulation in general, suggest this. This places the blame for a lack of evidence-based accounting regulation on accounting researchers, but only in part. It could equally well be the case that the staff who are employed by standard setters do not have the necessary expertise to adopt an evidence-based approach to their work (of course, worldwide there are leading accounting academics who are standard setters). There indeed appears to be a paucity of contributions to academic accounting research from the standard setters' research staff, if such research staff even exist. Contributions to peer-refereed research journals appear to be far more prevalent in the context of regulation in cognate areas, for example, in banking and bank regulation.

FUTURE OF EVIDENCE-BASED FINANCIAL REPORTING AND DISCLOSURE REGULATION

In fact, the last two issues mentioned, insufficient academic accounting research and a lack of research expertise among regulators, could be remedied. It would entail increasing accounting research output in academic journals and accounting doctorates, that is, generating evidence and expertise more quickly and to a much greater extent. Interestingly, Swanson (2004) has shown that accounting researchers simply tend to publish fewer papers in (major) academic journals than do their counterparts in other business disciplines. Perhaps publication format changes could help in part. One can imagine the creation of 'Accounting Letters' and 'Auditing Letters', refereed academic journals that would produce quick concise research results.

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[1] http://coase.org/coaseonline.htm

Another change, which is related to the question of the desirability of regulation, already appears to be under way. The view of the Chicago School of Economics on regulation, and that of its adherents in accounting and auditing, rests on a confidence in private orderings and a confidence in courts to adjudicate in the case of any remaining or resulting conflicts, and also on the idea of the improbability of a benevolent and competent government. However, in a series of recent articles, researchers within economics have questioned the tenability of the Chicago School viewpoint. They have focused specifically on the relative incentives and competences of judges (courts) and regulators in the context of stock market regulation. This includes disclosure regulation. An example is Glaeser *et al.*, (2001) who argue that a clear case can be made, in the context of securities markets regulation, for a preference for regulatory as opposed to judicial enforcement. They use the development of the stock markets in Poland and the Czech Republic in the 1990s to corroborate this empirically. In the Czech Republic, weak regulation was put in place on the basis of Chicago School arguments. In Poland, a strong regulatory regime was created around its stock markets. The development of the stock market in Poland proved much more rapid. Shleifer (2005) summarizes the research in this area. It can be expected that this within-economics debate will find its way into accounting and auditing research, thereby removing a perceived impediment (Francis, 2004) to the contribution of accounting and auditing researchers to evidence-based financial reporting and disclosure regulation.

The papers in this issue have in common that they are all linked to a European Commission funded Marie Curie Research Training Network that ran from 2000 to 2004—the HARMONIA project (FP5: HPRN-CT-2000-00062). The aim of the network has been to train pan-European young doctoral researchers in empirical financial accounting research, in a collaborative effort between several European accounting research centres. Note that both in terms of the output of new doctorates and in terms of the papers published here, and elsewhere, this network can be seen as contributing to a concerted effort, involving more research and greater expertise, that is aimed at making financial reporting and disclosure regulation 'evidence-based'.

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HELENA ISIDRO, JOHN O'HANLON AND STEVEN YOUNG

Dirty Surplus Accounting Flows and Valuation Errors

For France, Germany, the U.K. and the U.S. for the period from 1994 to 2001, this study explores empirically the association between valuation errors from a standard empirical application of the residual income valuation model and violations of the clean surplus relationship (dirty surplus accounting flows). Motivated by concern that the effect of dirty surplus accounting on the applicability of accounting-based valuation models might vary across accounting regimes, the study also documents differences across pairs of countries in the relationship between valuation errors and dirty surplus flows. The study finds some weak evidence of predicted relationships between valuation errors and dirty surplus flows in the U.S., but finds little evidence of such relationships elsewhere. There is some limited evidence of cross-country difference in the relationship between valuation errors and dirty surplus flows, mostly involving the U.S.

Key words: Accounting; Clean surplus relationship; Dirty surplus accounting; Valuation.

For France, Germany, the U.K. and the U.S. for the period from 1994 to 2001, this study explores empirically the association between valuation errors from a standard empirical application of the residual income valuation model (RIVM) and violations of the clean surplus relationship (CSR), which we term dirty surplus accounting flows. Motivated by concern that the effect of dirty surplus accounting on the applicability of accounting-based valuation models might vary across accounting regimes, we also document differences across pairs of countries in the relationship between valuation errors and dirty surplus flows.

CSR holds from an equity perspective if all accounting gains and losses of a period are included in that period's net income. Violations of CSR (dirty surplus accounting flows) arise when some recognized gains or losses are excluded from

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net income. There is a long history of concern that the relative lack of transparency of dirty surplus accounting might limit the usefulness of accounting numbers in performance measurement (Paton, 1934; May, 1937; Littleton, 1940; Johnson *et al.*, 1995; Financial Accounting Standards Board, 1997; Linsmeier *et al.*, 1997). There has also been some concern that dirty surplus accounting may be a source of error in accounting-based valuation models (Linsmeier *et al.*, 1997), and that cross-regime differences in dirty surplus accounting may cause cross-country differences in the applicability of such models (Frankel and Lee, 1999). Such concerns have been reflected in moves by accounting regulators to eliminate dirty surplus flows, or to require that they be reported more transparently in statements of comprehensive income, which include all recognized gains and losses.[1]

We implement a standard constant-growth continuing-value empirical formulation of RIVM, where inputs are constructed under the assumption that CSR holds. We note that this formulation gives the same value estimates as a corresponding formulation of the abnormal earnings growth model, provided that growth assumptions are consistent across both models. We treat realized dirty surplus flows as proxies for expected future dirty surplus flows, and investigate empirically the relationship between our valuation errors and those dirty surplus flows. We do so for France, Germany, the U.K. and the U.S. for the period from 1994 to 2001, and document differences in the relationship across pairs of countries. We use two separate samples of data: a large sample of U.K. and U.S. firms, and a small sample of French, German, U.K. and U.S. firms. This allows us to provide evidence from available large samples of reliable machine-readable data on dirty surplus flows for the U.K. and the U.S., as well as comparative evidence for other countries where such flows are significant but can only be measured reliably through time-consuming hand collection of data from financial statements.

We find some weak evidence of predicted relationships between dirty surplus flows and valuation errors in the U.S., but find little evidence of predicted relationships elsewhere. There is some limited evidence of cross-country difference in the relationship between valuation errors and dirty surplus flows, mostly involving the U.S. Overall, our results do not suggest that dirty surplus flows are a consistent source of error in applications of accounting-based valuation models.

DIRTY SURPLUS ACCOUNTING PRACTICES AND SOME PRIOR EVIDENCE ON THEIR ROLE IN VALUATION

In the four countries considered in this study, dirty surplus accounting practices have been commonplace over our sample period of 1994 to 2001, and there has been substantial variation across these four countries with regard to the nature and scale of those practices (Isidro *et al.*, 2004). In France, dirty surplus flows have included goodwill write-offs, asset revaluations, currency translation differences, prior-year adjustments, subsidies, regulated provisions, consolidation scope adjustments and changes in accounting policy resulting from new accounting regulations. In Germany, they have included goodwill write-offs, currency translation differences, prior-year adjustments, certain consolidation adjustments and unrealized appreciation in investments. In the U.K., they have included goodwill write-offs (now abolished), asset revaluations, currency translation differences and prior-year adjustments. In the U.S., they have included unrealized gains and losses on marketable securities, currency translation differences, minimum pension liability adjustments, prior-year adjustments and, towards the end of our sample period, unrealized gains and losses on derivative instruments. Also, merger accounting, which can be viewed as giving rise to a dirty surplus flow similar to a goodwill write-off, was common in the U.S. in our sample period and was also observed to a lesser extent in the U.K.

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[1] Examples include FRS 3, *Reporting Financial Performance* (Accounting Standards Board, 1992) and FRS 10, *Goodwill and Intangible Assets* (Accounting Standards Board, 1997) in the U.K. and SFAS 130, *Reporting Comprehensive Income* (Financial Accounting Standards Board, 1997) in the U.S. Also, a joint project on the reporting of financial performance being conducted by the International Accounting Standards Board and the Financial Accounting Standards Board includes consideration of comprehensive income statements.

Although theory suggests that disregard for dirty surplus flows in the application of accounting-based valuation models could give rise to valuation errors, the evidence to date on the importance of such flows in valuation is mixed. Dhaliwal *et al.* (1999) measure the association between share returns and contemporaneous dirty surplus flows in the U.S. They find some association between returns and unrealized gains on marketable securities, but that the overall association between returns and dirty surplus flows is weak. Kanagaretnam *et al.* (2005), using a later data set including a period subsequent to the implementation of SFAS 130, *Reporting Comprehensive Income* (Financial Accounting Standards Board, 1997), find a stronger association between dirty surplus flows and share returns than was reported by Dhaliwal *et al.* (1999). Biddle and Choi (2006) report that U.S. comprehensive income is more strongly associated with share returns than is net income. Cahan *et al.* (2000) report evidence of association between share prices and dirty surplus flows in New Zealand. Pinto (2005) reports that the currency translation component of comprehensive income can be value-relevant when considered in conjunction with proxies for sources of currency exposure. O'Hanlon and Pope (1999) find only a weak association between long-interval share returns and corresponding long-interval accumulations of dirty surplus flows in the U.K. Isidro *et al.* (2004) explore the association between market-to-book ratios and perfect-foresight forecasts of dirty surplus flows in France, Germany, the U.K. and the U.S., and find only weak association. To date there is no direct evidence on the relationship between dirty surplus flows and valuation errors from standard applications of accounting-based valuation models. In this paper, we provide such evidence, using data from France, Germany, the U.K. and the U.S.

VALUE ESTIMATES AND VALUATION ERRORS IN RIVM

In this section, we show how RIVM is derived from the present value of expected dividends (PVED), describe a standard empirical constant-growth continuing-value formulation of RIVM, and state predictions for the association between valuation errors from this formulation of RIVM and dirty surplus flows.

RIVM is derived from PVED, which is as follows:

$$V_t = \sum_{s=1}^{\infty} \frac{E_t[d_{t+s}]}{(1+r)^s}, \qquad \text{(PVED)}$$

where V_t denotes the intrinsic value of equity at time t (the valuation date), d_{t+s} denotes dividend net of equity issues at time $t+s$, r denotes the cost of equity and $E_t[.]$ is a time-t expectations operator. RIVM can be derived by adding to PVED the following zero-sum expression:

$$0 = y_t + \sum_{s=1}^{\infty} \frac{E_t[y_{t+s} - (1+r)y_{t+s-1}]}{(1+r)^s}, \qquad (1)$$

where $E_t[y_{t+s}](1+r)^{-s} \to 0$ as $s \to \infty$. Alternatively, y could be a finite series that is expected to end at time $t+T$, where $E_t[y_{t+T}] = 0$. Addition of (1) to PVED gives

$$V_t = y_t + \sum_{s=1}^{\infty} \frac{E_t[y_{t+s} + d_{t+s} - (1+r)y_{t+s-1}]}{(1+r)^s}. \qquad (2)$$

Defining y to be book value of equity, denoted b, gives

$$V_t = b_t + \sum_{s=1}^{\infty} \frac{E_t[b_{t+s} + d_{t+s} - (1+r)b_{t-s-1}]}{(1+r)^s}. \qquad (3)$$

Under CSR, net income, denoted x, is equal to the change in the book value of equity plus dividends net of equity issues:

$$x_{t+s} = b_{t+s} + d_{t+s} - b_{t+s-1}. \qquad \text{(CSR)}$$

Residual income for time $t+s$, denoted x^a_{t+s}, is equal to $x_{t+s} - r.b_{t+s-1}$. Under CSR, this can be written as

$$\begin{aligned} x^a_{t+s} &= b_{t+s} + d_{t+s} - b_{t+s-1} - r.b_{t+s-1} \\ &= b_{t+s} + d_{t+s} - (1+r)b_{t+s-1}. \end{aligned} \qquad (4)$$

Substitution of (4) into (3) gives RIVM:

$$V_t = b_t + \sum_{s=1}^{\infty} \frac{E_t[x^a_{t+s}]}{(1+r)^s}. \qquad \text{(RIVM)}$$

RIVM expresses the intrinsic value of equity as book value plus the present value of forecast residual incomes (Ohlson, 1995).

Standard empirical per-share formulations of RIVM comprise book value per share at time t, individually discounted residual incomes expected to arise from time $t+1$ up to time $t+T$ and a continuing-value term representing the present value of all residual incomes expected to arise after time $t+T$, and use book value per share forecasts derived under the assumption that CSR holds on a per-share basis (Frankel and Lee, 1998; Lee *et al.*, 1999; Gebhardt *et al.*, 2001). Such a formulation is as follows:

$$VPS_t = bps_t + \sum_{s=1}^{T} \frac{xps^a_{t-s}}{(1+r)^s} - \frac{xps^a_{t+T+1}}{(1+r)^T(r-g)}, \qquad (5)$$

where VPS_t is the estimate of intrinsic value per share at time t, bps_t is book value per share at time t, xps^a_{t+s} is the time-t forecast of residual income per share for time $t + s$, r is the cost of equity as previously defined and g is the constant rate of expected growth in residual income per share after time $t + T + 1$. xps^a_{t+s} is equal to $xps_{t+s} - r.bps_{t+s-1}$, where xps_{t+s} is the time-t forecast of earnings per share for time $t + s$ and bps_{t+s} for $s > 0$ is the time-t forecast of book value per share at time $t + s$. bps_{t+s} is derived under the CSR assumption that $bps_{t+s} = bps_{t+s-1} + xps_{t+s} - dps_{t+s}$, where dps_{t+s} is the time-t forecast of dividend per share for time $t + s$, calculated by applying a payout ratio to earnings per share. Our empirical analysis uses such a formulation.

Following Penman (2005), we note that this empirical formulation gives the same value estimates as a corresponding empirical constant-growth continuing-value formulation of the abnormal earnings growth model (AEGM), provided that growth assumptions are consistent across both models.[2] This equivalence is shown in the Appendix to this paper.

In the empirical implementation of RIVM described above, forecast earnings is the driver of forecast dividends. This is consistent with the notion that, over the whole life of the firm, aggregate dividends net of equity issues must equal aggregate net accounting gains and that, holding book value constant, disregard for an expected future accounting flow implies disregard for a dividend effect of the same magnitude at some time in the future.[3] We draw upon this notion in generating our prediction with regard to the association between valuation errors from accounting-based valuation models and dirty surplus flows. If the valuation error is defined as the intrinsic value estimate given by the flows used within the valuation model less the market price, which is assumed to reflect all forecast flows including those that are excluded from the valuation model, then a negative association is predicted between valuation errors and expected future dirty surplus flows. The omission of a positive (negative) expected future dirty surplus flow from an accounting-based valuation model will imply an underestimate (overestimate) of expected future dividends, an underestimate (overestimate) of intrinsic value and, other things being equal, a negative (positive) valuation error and a negative relationship between valuation errors and expected future dirty surplus flows. However, we recognize that any such relationship could be weak if omitted expected flows are distant or if a large proportion of the dividend impact of flows is expected to arise long after the flow itself, for example, as part of a liquidating dividend. In subsequent sections, we explore empirically whether expectations about dirty surplus flows, as proxied by realizations of such flows, are negatively associated with valuation errors for our forecast-based implementation of RIVM. We also carry out a related test of the weaker prediction that the magnitude of valuation error is positively associated with the magnitude of expected future dirty surplus flows. For this, we use absolute values of valuation errors and dirty surplus flows.

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[2] See Ohlson (2005) for the development of the AEGM, and Chen *et al.* (2004) for an empirical application of the model.

[3] Note that book value of equity at a point in time is equal to the sum of the aggregate net accounting gains less dividends net of equity issues from incorporation up to that point in time.

EMPIRICAL METHODS

Empirical analysis is performed separately on two samples for the period 1994 to 2001: a large sample of U.K. and U.S. firms, for which dirty surplus flows are collected from the Extel database supplied by Thomson Financial for the U.K. and from Compustat for the U.S.; and a small sample of French, German, U.K. and U.S. firms, for which dirty surplus flows are hand collected from published financial statements. This approach enables us to provide evidence based on available large samples of reliable machine-readable data on dirty surplus flows for the U.K. and the U.S., while also including comparative evidence for a wider set of countries for which dirty surplus flows are important but can only reliably be measured by time-consuming hand collection of data.[4] In this section we describe the methods used to explore the empirical relationship between RIVM valuation errors and dirty surplus flows for these two samples. First, we describe the procedure used to construct value estimates; second, we describe our procedures for measuring dirty surplus flows; third, we describe the methods used to measure the relationship between the items.

RIVM Value Estimates

Value estimates are constructed in the same way for both the two-country large sample and the four-country small sample. Valuation dates are set by reference to firms' balance sheet dates. On the basis of inspection of the normal lag between the balance sheet date and the reporting date in each country, the valuation date is set at three months after the balance sheet date for France, the U.K. and the U.S., and five months after the balance sheet date for Germany. RIVM value per share estimates are constructed as follows, consistent with the procedure described in (5) (firm subscripts are suppressed)[5]:

$$VPS_t = bps_t + \sum_{s=1}^{2} \frac{xps^a_{t+s}}{(1+r)^s} + \frac{xps^a_{t+3}}{(1+r)^2(r-g)}, \tag{6}$$

where xps^a_{t+s} is forecast residual income per share for s years after the valuation date t, as previously defined, equal to $xps_{t+s} - r.bps_{t+s-1}$. Book value per share at the valuation date (bps_t) is book value for common shareholders from the most recent published financial statements, as given by Thomson Financial's Worldscope item Ws.03501 for French, German and U.K. firms and Compustat item 60 for U.S. firms, divided by the number of common shares outstanding at the valuation date. Forecast earnings per share (xps_{t+s}) is estimated as follows: for one and two years ahead it is estimated as the I/B/E/S mean consensus forecast of earnings per share[6]; for three years ahead, it is estimated as the product of (a) an expected country-industry return on equity and (b) the forecast of opening book value per share for that year. An expected country-industry return on equity for three years ahead and thereafter, used in forecasting three-year-ahead earnings and in constructing the continuing-value term, is set equal to the mean for industry j in country k, calculated by dividing the aggregate of income before extraordinary items by the aggregate of the corresponding lagged book value for common shareholders for the seven years up to the valuation date. Here, we use all available accounting data for industry j in country k. The income item is Worldscope item Ws.01551 for French, German and U.K. firms and Compustat item 18 for U.S. firms.[7] Here, and for other purposes for which industry-level estimates are required, we use the following four broad industry groups: (a) resources, basic and general industries and utilities; (b) consumer goods; (c) services, information, and technology; and (d) financial. As is standard in empirical applications of RIVM, such as Lee *et al.* (1999), forecasts of book value per share for one and two years after the valuation date are obtained, as outlined in the previous section, under the assumption that CSR holds:

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[4] Although a comparison of hand-collected dirty surplus flows from U.K and U.S. firms' financial statements with corresponding data supplied by machine-readable financial databases revealed some discrepancies, these did not lead us to conclude that the inferences from a large-sample study based on these databases would be unreliable. A similar comparison of information on dirty surplus flows from French and German financial statements with corresponding machine-readable data led us to conclude that the machine-readable data were insufficiently complete to support inferences about the relationship between valuation errors and dirty surplus flows, or to support cross-country comparisons between the relationships.

[5] Following Lee *et al.* (1999), we also implement the models using additional periodic flows generated under the assumption that return on equity is expected to fade to the industry mean over a number of years. This does not materially change our results. (See sensitivity tests.) We also implement AEGM using the same data used in implementing RIVM and using consistent growth assumptions, and confirm that both models give identical value estimates.

$$\begin{aligned} bps_{t+1} &= bps_t + xps_{t+1} - dps_{t+1} \\ bps_{t+2} &= bps_t + xps_{t+1} - dps_{t+1} + xps_{t+2} - dps_{t+2}, \end{aligned}$$

where dps_{t+s} is set equal to $\pi.xps_{t+s}$, where π is the constant expected dividend payout ratio for industry j in country k for $t+1$ and thereafter. The expected payout ratio is computed for each country-industry by dividing aggregate common dividends (Worldscope item Ws.05376 for French, German and U.K. firms and Compustat item 21 for U.S. firms) by aggregate income for the seven years up to the valuation date. Firms experiencing negative earnings are included in the calculations to avoid bias towards profitable firms. Consistent with other studies (e.g., Lee *et al.*, 1999; Gode and Mohanram, 2003), we winsorize estimated payout ratios to lie between 0 and 1. Also, in order to avoid distortion due to firms making distributions to shareholders through share repurchases, we eliminate non-dividend-paying firms as in Lee *et al.* (1999). The estimated cost of equity capital, r, at the valuation date t for a firm in industry j in country k, is set equal to the Treasury Bond rate for country k for the year ended at the valuation date, plus the product of (a) an assumed risk premium of 5 per cent and (b) the mean equity beta for firms in industry j in country k, constructed from Datastream beta estimates. We assume that the cost of equity is expected to remain constant after the valuation date. The constant growth term in (6), g, is assumed equal to the product of (a) the expected country-industry return on equity for $t + 3$ and thereafter and (b) the expected country-industry retention ratio $(1 - \pi)$. This can be interpreted as the expected constant rate of book value growth after $t + 2$ and, since the cost of equity and the return on equity are assumed constant for $t + 3$ and thereafter, as the assumed constant rate of growth in residual income after $t + 3$. Consistent with previous valuation studies, negative value estimates are set to zero (e.g., Francis *et al.*, 2000).

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[6] The earnings per share forecasts and prices obtained from I/B/E/S are share-split adjusted. We convert the reported earnings per share forecasts to actual using I/B/E/S adjustment factors. We also convert any earnings forecasts reported on a diluted basis to basic using I/B/E/S dilution factors.

[7] We impose a lower bound equal to the cost of equity on the estimated return on equity used in the continuing-value-term. Negative-book-value observations are not considered in the estimation of the country-industry return on equity.

The valuation error at valuation date t is measured as the intrinsic value per share estimate less the observed share price at the valuation date, scaled by the observed price. Share prices are obtained from I/B/E/S.[8]

Dirty Surplus Flow Measures

Our predictions relate to the relationship between valuation errors and expected future dirty surplus flows. Our empirical analysis uses realized dirty surplus flows as proxies for expected future dirty surplus flows as at the valuation date.

For the large sample, we categorize dirty surplus flows in accordance with the categories used by the databases, which differ between the two countries because of the different types of dirty surplus flows in those countries. For the U.K., four categories of dirty surplus flows reported by Extel are collected: prior-year adjustments (Extel item ir_rsm), goodwill write-offs net of write-backs (Extel item ir_gw), asset revaluations (Extel item ir_rvl) and currency translation differences (Extel item ir_fx).[9] For the U.S., we follow the procedure used by Dhaliwal *et al.* (1999) to collect the following three categories of dirty surplus flows from Compustat: adjustments for marketable securities (change in Compustat item 238), adjustments related to minimum pension liabilities (Compustat item 297 less Compustat item 298, if negative) and currency translation differences (change in Compustat item 230).[10]

For the four-country small sample of French, German, U.K. and U.S. firms, total dirty surplus flows are obtained from the hand-collected database used in

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[8] As with our I/B/E/S earnings per share forecasts, we convert the I/B/E/S-reported prices to actual by reversing the share-split adjustments applied by I/B/E/S.

[9] We use the Extel database supplied by Thomson Financial rather than its Worldscope database, because Worldscope does not report dirty surplus flows directly.

[10] SFAS 133, *Accounting for Derivative Instruments and Hedging Activities* (Financial Accounting Standards Board, 1998) came into effect for fiscal years beginning after 15 June 1999, towards the end of our sample period. Some cases of unrealized gains and losses on derivative instruments were identified in the latter years of our small-sample data (see below). In the absence of an established method of identifying these items from Compustat, we did not deal with them in our large sample data.

Isidro *et al.* (2004).[11] In constructing this database, all quoted firms identified by Datastream in respect of each of the four countries are assigned to one of the four broad industry categories referred to earlier (resources, basic and general industries and utilities; consumer goods; services, information and technology; financial) and to one of four size categories within the assigned industry category. For each country, five firms from each of the resulting sixteen industry-size categories are then randomly selected to produce a final sample of eighty firms per country.[12] For each firm-year, all movements in equity, comprising net income, transactions with shareholders and dirty surplus flows, are accounted for. All dirty surplus flows are assigned to one of four broad categories common to all four countries: (a) prior-year adjustments; (b) goodwill-related items, comprising goodwill write-offs net of write-backs (France, Germany and U.K. only) and issues of equity unrecorded due to merger accounting which are treated similarly to a goodwill write-off (U.K. and U.S. only)[13]; (c) asset revaluations; and (d) other items, comprising currency translation differences, unrealized gains and losses on marketable securities (U.S. only), adjustments related to minimum pension liabilities (U.S. only), and sundry gains and losses not included in any of the foregoing categories, which include unrealized gains and losses on derivative instruments (for the U.S. in the last two years of our sample period), certain consolidation adjustments and subsidies.

For both samples, all dirty surplus flows are scaled by beginning-of-year market value. For French, German and U.K. firms, market value is obtained from Worldscope (item Ws.08001); for U.S. firms, it is obtained from Compustat by multiplying price per share (item 199) by the number of shares outstanding (item 25).

For our U.K. large-sample data, total dirty surplus flows are

$$TDSF_t = PYA_t + GW_t + AR_t + CUR_t,$$

for our U.S. large-sample data they are

$$TDSF_t = MSEC_t + PEN_t + CUR_t,$$

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[11] See Isidro *et al.* (2004) for full details.

[12] In the cases of France and Germany, a number of chosen firms switched from domestic GAAP to International Accounting Standards or U.S. GAAP during the period, and were replaced by other firms from the appropriate industry-size portfolio that used domestic GAAP throughout. Firms in existence for only part of the period covered by the database were retained to avoid biasing the country samples towards established and surviving firms.

[13] In the Isidro *et al.* (2004) database, issues of equity not recorded due to merger accounting appear as two compensating entries: once as a credit to shareholders' funds (the issue of equity) and once as a debit to shareholders' funds (similar to a goodwill write-off). The item is measured as the excess of the market value of equity issued in respect of transactions accounted for as mergers over the increase in equity recognized in the financial statements in respect of the mergers.

and for our four-country small-sample data they are

$$TDSF_t = PYA_t + GWGM_t + AR_t + OTH_t.$$

Here, notation relates to market-value-scaled dirty surplus flows, and is as follows: *TDSF* denotes total dirty surplus flows, *PYA* denotes prior-year adjustments, *GW* denotes goodwill write-offs net of write-backs, *AR* denotes asset revaluations, *CUR* denotes currency translation differences, *MSEC* denotes unrealized gains and losses on marketable securities, *PEN* denotes adjustments related to minimum pension liabilities, *GWGM* denotes the goodwill-related items, comprising goodwill write-offs (net of write-backs) and issues of equity unrecognized due to merger accounting, and *OTH* denotes other items as described above. Goodwill and the goodwill-related items are normally of negative sign.

Tests of the Relationship Between Valuation Error and Dirty Surplus Flows

We treat realized dirty surplus flows as proxies for expected future dirty surplus flows as at the valuation date. We carry out an initial exploration of the relationship between valuation errors and dirty surplus flows through inspection of the cross-country patterns in the overall valuation errors and the overall dirty surplus flows, for both the two-country large sample and the four-country small sample. We then explore the relationship through the use of regression models. For each country and for all countries taken together, we test the relationship between firm-mean valuation errors and firm-mean dirty surplus flows, where firm means are calculated from available data over our entire sample period. For this, we use the following regression model:

$$AVE_i = \alpha_1 + \beta_1 ATDSF_i + \varepsilon_{1,i}, \tag{7}$$

where AVE_i is the mean scaled valuation error for firm i and $ATDSF_i$ is the mean scaled total dirty surplus flow for firm i, both based on all available data for the sample period, α_1 and β_1 are regression coefficients, and $\varepsilon_{1,i}$ is an error term. We predict a negative sign for β_1: Positive (negative) disregarded expected future dirty surplus flows would be expected to induce a negative (positive) valuation error. We also carry out a test of the weaker prediction that the magnitude of valuation error is associated with the magnitude of dirty surplus flows. For this, we use the following regression model:

$$|AVE_i| = \alpha_2 + \beta_2 |ATDSF_i| + \varepsilon_{2,i}, \tag{8}$$

where $|AVE_i|$ is the mean absolute scaled valuation error, $|ATDSF_i|$ is the mean absolute scaled total dirty surplus flow, α_2 and β_2 are regression coefficients, and $\varepsilon_{2,i}$ is an error term. If the magnitude of valuation error is associated with the magnitude of dirty surplus flows, β_2 will be positive. Because goodwill is a major item for which the association with the value of the firm may reflect the positive signal that profitable growth opportunities are available as well as the negative signal that a cost is incurred, each of the regression models (7) and (8) is estimated twice, inclusive and exclusive of goodwill.[14] Motivated by concern that dirty surplus accounting might vary across countries with respect to its effect on the applicability of accounting-based valuation models, we test for differences across pairs of countries in the relationship between valuation errors and dirty surplus flows. Here, we use regression models containing dummy variables to test for cross-country differences in the regression slope coefficients.

For each of a number of years, we also run regression models in which the dependent variable is the scaled valuation error for firm *i* at valuation date *t* and the explanatory variables are proxies for expected dirty surplus flows comprising the mean scaled flow for firm *i* for the three years up to the valuation date *t*. We consider both aggregate flows and components of flows, and both signed and absolute values of the variables. The use of yearly valuation errors and corresponding recent dirty surplus flows provides evidence as to whether relationships are consistent across time periods. The disaggregation across components allows us to observe whether effects with respect to total dirty surplus flows are due to particular classes of flow.

For the U.K. large sample, our regression models are as follows:

$$VE_{i,t} = \alpha_{31} + \beta_{31} TDSF3_{i,t} + \varepsilon_{31,i,t} \tag{9}$$

$$VE_{i,t} = \alpha_{32} + \beta_{32} PYA3_{i,t} + \beta_{33} GW3_{i,t} + \beta_{34} AR3_{i,t} + \beta_{35} CUR3_{i,t} + \varepsilon_{32,i,t} \tag{10}$$

$$|VE_{i,t}| = \alpha_{41} + \beta_{41} |TDSF3_{i,t}| + \varepsilon_{41,i,t} \tag{11}$$

$$\begin{aligned} |VE_{i,t}| = \alpha_{42} &+ \beta_{42} |PYA3_{i,t}| + \beta_{43} |GW3_{i,t}| + \beta_{44} |AR3_{i,t}| \\ &+ \beta_{45} |CUR3_{i,t}| + \varepsilon_{42,i,t}, \end{aligned} \tag{12}$$

where $VE_{i,t}(|VE_{i,t}|)$ denotes the signed (absolute) price-scaled valuation error for firm *i* at valuation date *t*, $TDSF3_{i,t}$ ($|TDSF3_{i,t}|$) denotes the mean of the signed (absolute) scaled total dirty surplus flows for firm *i* for the three years up to the valuation date *t*, *PYA*3, *GW*3, *AR*3 and *CUR*3 denote the corresponding three-year measures for prior-year adjustments, goodwill write-offs net of write-backs, asset revaluations, and currency translation differences, respectively, the α and β terms are regression coefficients and the ε terms are error terms.

For the U.S. large sample, the regression models are as follows:

$$VE_{i,t} = \alpha_{51} + \beta_{51} TDSF3_{i,t} + \varepsilon_{51,i,t} \tag{13}$$

$$VE_{i,t} = \alpha_{52} + \beta_{52} MSEC3_{i,t} + \beta_{53} PEN3_{i,t} + \beta_{54} CUR3_{i,t} + \varepsilon_{52,i,t} \tag{14}$$

$$|VE_{i,t}| = \alpha_{61} + \beta_{61} |TDSF3_{i,t}| + \varepsilon_{61,i,t} \tag{15}$$

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[14] Note also that the option to account for goodwill as a dirty surplus flow was removed in the U.K. in 1998 (FRS 10, *Goodwill and Intangible Assets*, Accounting Standards Board, 1997), and that the use of merger accounting was abolished in the U.S. from 2001 (SFAS 141, *Business Combinations*, Financial Accounting Standards Board, 2001). In the periods prior to the implementation of these standards, it may therefore be inappropriate to view realizations of these items as proxies for expectations of future dirty surplus flows. Nevertheless, to the extent that analyst forecasts failed to reflect the expected future costs associated with this class of item, it would act as a proxy for expected accounting flows disregarded within the valuation models.

$$|VE_{i,t}| = \alpha_{62} + \beta_{62}|MSEC3_{i,t}| + \beta_{63}|PEN3_{i,t}| + \beta_{64}|CUR3_{i,t}| + \varepsilon_{62,i,t}, \tag{16}$$

where *MSEC3* and *PEN3* denote the three-year measures for unrealized gains and losses on marketable securities and minimum pension liability adjustments, respectively, and other notation is as in (9) to (12). As for models (7) and (8), we use regression models containing dummy variables to test for differences between the U.K. and U.S. coefficients on total dirty surplus flows in models (9) and (13) and in models (11) and (15) but, because the individual flow categories differ across the two countries, we do not do so for the individual flow categories in this case.

For the four-country small sample, the regression models are as follows for all countries, although the asset revaluation terms are not applicable for Germany and U.S. and prior-year adjustments do not arise in our French sample:

$$VE_{i,t} = \alpha_{71} + \beta_{71}TDSF3_{i,t} + \varepsilon_{71,i,t} \tag{17}$$

$$\begin{aligned} VE_{i,t} = {} & \alpha_{72} + \beta_{72}PYA3_{i,t} + \beta_{73}GWGM3_{i,t} + \beta_{74}AR3_{i,t} \\ & + \beta_{75}OTH3_{i,t} + \varepsilon_{72,i,t} \end{aligned} \tag{18}$$

$$|VE_{i,t}| = \alpha_{81} + \beta_{81}|TDSF3_{i,t}| + \varepsilon_{81,i,t} \tag{19}$$

$$\begin{aligned} |VE_{i,t}| = {} & \alpha_{82} + \beta_{82}|PYA3_{i,t}| + \beta_{83}|GWGM3_{i,t}| + \beta_{84}|AR3_{i,t}| \\ & + \beta_{85}|OTH3_{i,t}| + \varepsilon_{82,i,t}, \end{aligned} \tag{20}$$

where *GWGM3* denotes the three-year measure for goodwill-related items (goodwill write-offs net of write-backs plus issues of equity unrecognized due to merger accounting), and *OTH3* denotes the three-year measure for other items (which include currency translation differences, unrealized gains and losses on marketable securities, minimum pension liability adjustments, unrealized gains and losses on derivative instruments, certain consolidation adjustments and subsidies), and other notation is as in (9) to (12). Since the categories of dirty surplus flow used in (17) to (20) are common across countries, we test for cross-country differences in the regression slope coefficients for each category.

In the signed-value regression models (9), (10), (13), (14), (17) and (18), we predict a negative sign for the β coefficients; in the absolute-value regression models (11), (12), (15), (16), (19) and (20), we predict a positive sign for the β coefficients.

SAMPLE AND DATA

Our sample selection is summarized in Table 1. This provides details both for our two-country large sample of U.K. and U.S. firms, and for our four-country small sample of French, German, U.K. and U.S. firms. For our two-country large sample, after eliminating as outliers the 2 per cent most extreme observations at either end of the distribution for both valuation errors and dirty surplus flows, there are 3,780 U.K. firm-years and 23,648 U.S. firm-years for which we have both valuation errors and dirty surplus flow data. For our four-country small sample, again after

Table 1

DETAILS OF SAMPLE

	France	Germany	U.K.	U.S.	All
Panel A: Sample selection process					
Firm-years for which prices, one-year-ahead earnings forecasts and two-year-ahead earnings forecasts are available from I/B/E/S for 1994 to 2001	1,622	1,777	4,656	26,040	34,095
Two-country large sample Firm-years for 1994 to 2001 with data from Thomson Financial or Compustat for measurement of dirty surplus flows and of book value[a]			14,914	171,264	186,178
Firm-years for 1994 to 2001 for which prices, value estimates and dirty surplus flows can be derived from data from I/B/E/S and Thomson Financial/Compustat[b] (per Table 2)			3,780	23,648	27,428
Four-country small sample Firm-years for 1994 to 2001 with data from the Isidro, *et al.* (2004) database for measurement of dirty surplus flows, and from Thomson Financial or Compustat for measurement of book value[a]	598	603	612	597	2,410
Firm-years for 1994 to 2001 for which prices, value estimates and dirty surplus flows can be derived from data from I/B/E/S, the Isidro *et al.* (2004) database and Thomson Financial/Compustat[b] (per Table 2)	167	141	171	235	714

Panel B: Numbers of yearly observations used to construct firm-means in tests reported in Tables 3 and 4

Large sample for U.K. and U.S.					
Total number of firm-means			1,124	6,654	7,778
8 years of data			43	639	682
7 years of data			66	419	485
6 years of data			88	453	541
5 years of data			125	558	683
4 years of data			136	687	823
3 years of data			194	1,082	1,276
2 years of data			223	1,285	1,508
1 year of data			249	1,531	1,780
Small sample for France, Germany, U.K. and U.S.					
Total number of firm-means:	51	46	43	50	190
8 years of data	2	0	2	8	12
7 years of data	2	2	3	9	16
6 years of data	4	2	4	6	16
5 years of data	6	3	7	5	21
4 years of data	7	10	9	4	30
3 years of data	10	11	8	4	33
2 years of data	5	9	5	5	24
1 year of data	15	9	5	9	38

[a] For France, Germany and the U.K., book value data are obtained from Thomson Financial's Worldscope database; for the U.S., the book value data are obtained from Compustat. These sources also provide the earnings and dividend data required to estimate country/industry estimates of return on equity and dividend payout. For the small sample, dirty surplus flow data are obtained from the Isidro *et al.* (2004) database; for the large sample, they are obtained from the Extel database supplied by Thomson Financial in the case of the U.K. and from Compustat in the case of U.S.

[b] These numbers are stated after eliminating 2% of extreme observations at both ends of the distributions for valuation errors and dirty surplus flows.

eliminating as outliers the 2 per cent most extreme observations at either end of the distribution for both valuation errors and dirty surplus flows, we have both valuation errors and dirty surplus flows for the following numbers of firm-years: France, 167; Germany, 141; the U.K., 171; the U.S., 235.[15] Panel B gives details of the numbers of yearly observations used to construct the firm-means for which cross-country comparisons are reported in Table 3, and for which results from regression models (7) and (8) are reported in Table 4.

Table 2 presents descriptive statistics for firm-year observations for the samples summarized in Panel A of Table 1. Panels A and B give statistics for return on equity, dividend payout, cost of equity, the book-to-price ratio, forecasts of earnings per share from I/B/E/S (scaled by price) for $t + 1$ and $t + 2$ (EPS1 and EPS2), yearly valuation errors as a proportion of price, and total dirty surplus flows as a proportion of price (signed and absolute, and inclusive and exclusive of goodwill). Panel A gives statistics for the two-country large sample, and Panel B gives statistics for the four-country small sample. Panel C gives a breakdown of the mean of total dirty surplus flows by category. In order to facilitate comparisons across the data used in the large- and small-sample studies, categories included within other items in the four-country small sample are broken down where applicable into the categories used in the two-country large-sample study. Panels A and B show that, across both samples and all countries, there is a consistent pattern of median signed valuation errors in the range –20% to –40%, with mean valuation errors being higher. This is similar to the U.S. RIVM valuation errors reported by Francis *et al.* (2000). Medians of absolute valuation errors are in the range 40% to 60%. For all countries with the exception of France in the small-sample data, the mean of signed total dirty surplus flows is negative, both inclusive and exclusive of goodwill-related items.[16] Apart from the U.S. large-sample data, the median value of absolute dirty surplus flows is greater than zero in all countries, which indicates that dirty surplus flows arise in the majority of firm-years in those cases. Comparison of mean absolute values confirms that dirty surplus flows have been larger in France, Germany and the U.K. than in the U.S. Panel C shows that, where applicable, goodwill-related items tend to be a large component of dirty surplus flows.

RESULTS

Table 3 presents cross-country comparisons of firm-mean valuation errors and firm-mean total dirty surplus flows. These are based on both signed and absolute values, for both the two-country large sample and the four-country small sample. The firm-means used in these comparisons are constructed from the data

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[15] For both samples, we repeat our tests deleting as outliers only 1 per cent of items at each end of the distribution. This has no material effect on our results. (See sensitivity tests.)

[16] Note that goodwill-related items do not appear in the U.S. large-sample data but, because of the inclusion of the merger-accounting item in the small sample, they are included in the U.S. small-sample data.

Table 2

SUMMARY STATISTICS: FIRM-YEAR OBSERVATIONS

Panel A: Large sample of U.K. and U.S. firms[a]

Country	*N*		Input variables						Valuation errors (as a proportion of price)		Total dirty surplus flows (as a proportion of beginning-of-period market value)			
			Return on equity	Dividend payout	Cost of equity	Book-to-price ratio	Forecast EPS1 (scaled by price)	Forecast EPS2 (scaled by price)	Signed	Absolute	Signed including goodwill	Absolute including goodwill	Signed excluding goodwill	Absolute excluding goodwill
All	27,428	*Mean*	0.134	0.531	0.110	0.554	0.055	0.076	0.147	0.798	−0.001	0.005	−0.001	0.005
		Median	0.133	0.548	0.110	0.444	0.063	0.077	−0.287	0.542	0.000	0.000	0.000	0.000
		SD	0.008	0.106	0.010	0.478	0.087	0.075	1.311	1.050	0.013	0.012	0.021	0.021
		Q1	0.129	0.428	0.101	0.259	0.038	0.052	−0.594	0.304	−0.001	0.000	−0.001	0.000
		Q3	0.140	0.629	0.115	0.707	0.088	0.104	0.348	0.794	0.000	0.004	0.000	0.003
		P1	0.117	0.315	0.089	0.014	−0.231	−0.143	−0.962	0.036	−0.058	0.000	−0.049	0.000
		P99	0.152	0.669	0.133	2.466	0.200	0.237	6.002	6.002	0.040	0.062	0.037	0.058
U.K.	3,780	*Mean*	0.134	0.529	0.111	0.569	0.077	0.092	0.020	0.729	−0.004	0.012	−0.001	0.008
		Median	0.133	0.527	0.105	0.423	0.076	0.087	−0.344	0.568	0.000	0.002	0.000	0.001
		SD	0.011	0.056	0.015	0.538	0.077	0.083	1.081	0.799	0.021	0.018	0.051	0.050
		Q1	0.128	0.491	0.096	0.225	0.054	0.065	−0.628	0.325	−0.006	0.000	−0.002	0.000
		Q3	0.138	0.581	0.127	0.756	0.102	0.115	0.260	0.802	0.000	0.015	0.000	0.007
		P1	0.105	0.402	0.092	−0.022	−0.131	−0.083	−0.958	0.036	−0.077	0.000	−0.060	0.000
		P99	0.160	0.654	0.137	2.619	0.236	0.265	4.679	4.679	0.054	0.077	0.051	0.065
U.S.	23,648	*Mean*	0.134	0.532	0.110	0.552	0.052	0.074	0.167	0.809	−0.001	0.004	−0.001	0.004
		Median	0.133	0.548	0.110	0.447	0.061	0.075	−0.277	0.538	0.000	0.000	0.000	0.000
		SD	0.007	0.112	0.009	0.468	0.088	0.073	1.343	1.085	0.011	0.010	0.011	0.010
		Q1	0.129	0.410	0.102	0.264	0.036	0.051	−0.587	0.301	0.000	0.000	0.000	0.000
		Q3	0.141	0.640	0.115	0.702	0.085	0.102	0.359	0.793	0.000	0.003	0.000	0.003
		P1	0.123	0.315	0.089	0.019	−0.242	−0.151	−0.963	0.036	−0.048	0.000	0.048	0.000
		P99	0.149	0.669	0.131	2.433	0.191	0.230	6.235	6.235	0.035	0.055	0.035	0.055

Table 2

(continued)

Panel B: Small sample of French, German, U.K. and U.S. firms[a]

Country	N		Input variables						Valuation errors (as a proportion of price)		Total dirty surplus flows (as a proportion of beginning-of-period market value)			
			Return on equity	Dividend payout	Cost of equity	Book-to-price ratio	Forecast EPS1 (scaled by price)	Forecast EPS2 (scaled by price)	Signed	Absolute	Signed including goodwill	Absolute including goodwill	Signed excluding goodwill	Absolute excluding goodwill
All	714	*Mean*	0.115	0.538	0.085	0.608	0.069	0.086	0.001	0.660	–0.008	0.017	–0.001	0.008
		Median	0.125	0.516	0.083	0.471	0.067	0.078	–0.315	0.497	0.000	0.003	0.000	0.002
		SD	0.025	0.138	0.015	0.535	0.044	0.081	0.998	0.749	0.041	0.038	0.019	0.017
		Q1	0.092	0.450	0.073	0.276	0.048	0.058	–0.564	0.275	–0.006	0.000	–0.003	0.000
		Q3	0.133	0.590	0.094	0.769	0.090	0.104	0.151	0.730	0.002	0.014	0.001	0.009
		P1	0.067	0.335	0.061	0.033	–0.066	0.000	–0.920	0.035	–0.204	0.000	–0.082	0.000
		P99	0.160	1.000	0.121	2.532	0.213	0.251	1.354	1.354	0.074	0.204	0.059	0.082
France	167	*Mean*	0.085	0.461	0.078	0.594	0.067	0.081	–0.284	0.488	0.000	0.011	0.002	0.010
		Median	0.081	0.450	0.075	0.534	0.068	0.077	–0.382	0.463	0.000	0.003	0.000	0.003
		SD	0.015	0.117	0.010	0.379	0.041	0.036	0.605	0.455	0.028	0.026	0.019	0.017
		Q1	0.075	0.412	0.073	0.308	0.048	0.061	–0.591	0.244	–0.001	0.001	–0.001	0.001
		Q3	0.094	0.471	0.083	0.771	0.088	0.099	–0.156	0.651	0.006	0.012	0.006	0.012
		P1	0.065	0.326	0.065	0.062	–0.012	–0.047	–0.923	0.029	–0.120	0.000	–0.060	0.000
		P99	0.137	1.000	0.101	1.835	0.159	0.190	2.010	2.010	0.078	0.120	0.078	0.088

Germany	141	*Mean*	0.101	0.596	0.071	0.674	0.063	0.087	–0.095	0.548	–0.011	0.018	–0.003	0.008
		Median	0.097	0.554	0.070	0.491	0.060	0.068	–0.315	0.454	–0.001	0.005	0.000	0.002
		SD	0.023	0.173	0.010	0.686	0.035	0.159	0.777	0.557	0.039	0.036	0.019	0.017
		Q1	0.087	0.494	0.065	0.332	0.043	0.051	–0.533	0.249	–0.014	0.001	–0.005	0.000
		Q3	0.109	0.616	0.075	0.810	0.084	0.094	0.151	0.689	0.001	0.017	0.001	0.008
		P1	0.076	0.360	0.055	0.071	–0.066	0.004	–0.919	0.029	–0.193	0.000	–0.070	0.000
		P99	0.190	1.000	0.092	4.852	0.158	0.230	3.137	3.137	0.081	0.193	0.043	0.070
U.K.	171	*Mean*	0.131	0.512	0.098	0.616	0.079	0.090	0.058	0.736	–0.014	0.030	–0.001	0.010
		Median	0.130	0.510	0.090	0.445	0.069	0.083	–0.304	0.563	0.000	0.006	0.000	0.001
		SD	0.012	0.063	0.015	0.522	0.057	0.058	1.024	0.711	0.060	0.054	0.023	0.021
		Q1	0.123	0.466	0.083	0.212	0.046	0.055	–0.615	0.304	–0.009	0.001	–0.004	0.000
		Q3	0.136	0.561	0.114	0.971	0.104	0.112	0.406	0.834	0.002	0.031	0.000	0.009
		P1	0.101	0.383	0.079	–0.020	–0.095	–0.055	–0.930	0.035	–0.257	0.000	–0.111	0.000
		P99	0.160	0.654	0.124	2.470	0.286	0.322	3.910	3.910	0.081	0.257	0.071	0.111
U.S.	235	*Mean*	0.134	0.577	0.089	0.572	0.067	0.086	0.221	0.794	–0.006	0.010	–0.002	0.006
		Median	0.133	0.561	0.090	0.442	0.065	0.079	–0.239	0.504	0.000	0.001	0.000	0.001
		SD	0.007	0.137	0.010	0.536	0.040	0.040	1.242	0.978	0.030	0.029	0.015	0.014
		Q1	0.129	0.492	0.081	0.262	0.049	0.061	–0.535	0.310	–0.003	0.000	–0.003	0.000
		Q3	0.141	0.651	0.095	0.665	0.090	0.106	0.472	0.748	0.000	0.008	0.000	0.007
		P1	0.123	0.330	0.067	0.046	–0.091	0.000	–0.857	0.040	–0.186	0.000	–0.046	0.000
		P99	0.149	1.000	0.112	2.956	0.186	0.223	4.867	4.867	0.028	0.186	0.034	0.079

TABLE 2

(CONTINUED)

Panel C: Means of signed and absolute values of dirty surplus flow by class of flow[b]

	Large sample		Small sample			
	U.K.	U.S.	France	Germany	U.K.	U.S.
Signed values						
Prior-year adjustments	0.000	NC	0.000	0.000	0.000	0.000
Asset revaluations	0.001	NA	0.000	NA	0.000	NA
Currency translation differences	-0.002	-0.001	0.003	-0.001	-0.002	-0.001
Gains/losses on marketable securities	NA	0.000	NA	NA	NA	0.000
Pension adjustments	NA	0.000	NA	NA	NA	0.000
Sundry gains and losses	NC	NC	-0.001	-0.002	0.001	-0.001
Total exclusive of goodwill-related items (per Panels A and B)[c]	-0.001	-0.001	0.002	-0.003	-0.001	-0.002
Goodwill	-0.003	NA	-0.002	-0.008	-0.013	NA
Merger accounting	NC	NC	NA	NA	0.000	-0.004
Total of goodwill-related items	-0.003	NC	-0.002	-0.008	-0.013	-0.004
Total inclusive of goodwill-related items (per Panels A and B)[c]	-0.004	-0.001	0.000	-0.011	-0.014	-0.006
Absolute values						
Prior-year adjustments	0.003	NC	0.000	0.000	0.001	0.000
Asset revaluations	0.002	NA	0.000	NA	0.004	NA
Currency translation differences	0.003	0.002	0.008	0.003	0.005	0.002
Gains/losses on marketable securities	NA	0.002	NA	NA	NA	0.004
Pension adjustments	NA	0.000	NA	NA	NA	0.000
Sundry gains and losses	NC	NC	0.003	0.007	0.002	0.000
Total exclusive of goodwill-related items (per Panels A and B)[c]	0.008	0.004	0.010	0.008	0.010	0.006
Goodwill	0.007	NA	0.002	0.011	0.022	NA
Merger accounting	NC	NC	NA	NA	0.000	0.004
Total of goodwill-related,items	0.007	NC	0.002	0.011	0.022	0.004
Total inclusive of goodwill-related items (per Panels A and B)[c]	0.012	0.004	0.011	0.018	0.030	0.010

[a] Panels A and B report mean, median, standard deviation (SD), first quartile (Q1), third quartile (Q3), 1st percentile (P1) and 99th percentile (P99) of the variables. Panel A reports statistics for the large sample of U.K. and U.S. firms for which dirty surplus flows are collected from machine-readable data sources; Panel B reports statistics for the small sample of French, German, U.K. and U.S. firms for which dirty surplus flows are obtained from the Isidro *et al.* (2004) hand-collected database. The variables described are as follows. Return on equity, used to obtain earnings forecasts for the third year after the valuation date and in constructing the continuing-value growth term, is the country-industry mean return on equity of the seven years prior to the valuation date. The dividend payout ratio, used to obtain forecasts of dividends necessary to compute forecasts of book values for use in RIVM and in constructing the continuing-value growth term, is the country-industry mean payout of the same seven-year period. Cost of equity is the mean Treasury Bond rate for the year of the valuation date plus the product of the mean country-industry beta and an assumed 5% risk premium. The book-to-price ratio is common book value per share at the balance sheet date prior to the valuation date divided by price at the valuation date. EPS1 (EPS2) scaled by price is forecast earnings per share for one year (two years) after the valuation date, measured as the mean consensus analyst forecast of earnings per share, divided by price at the valuation date. Valuation error as a proportion of price is the difference between the value estimate obtained from the valuation models and the observed price per share at the valuation date, divided by the latter. Negative value estimates are set to zero. Total dirty surplus flows are constructed as described in the text, and are expressed as a proportion of market value at the beginning of the year to which they relate. Observations that fall in the most extreme 2% at both ends of the distribution of valuation errors or of total dirty surplus flows are eliminated.

[b] Panel C reports the mean of the signed and absolute values of components of dirty surplus flows. 'NA' indicates that the item is not applicable. 'NC' indicates that the item is not calculated as part of the algorithm used in constructing the large-sample data.

[c] The sum of the means of the signed values of the individual dirty surplus flow components is equal to the mean of the signed values of the total dirty surplus flows. The sum of the means of the absolute values of the individual dirty surplus flow components is not equal to the mean of the absolute values of the total dirty surplus flows.

TABLE 3

CROSS-COUNTRY COMPARISONS OF FIRM-MEAN VALUATION ERRORS AND TOTAL DIRTY SURPLUS FLOWS[a]

Panel A: Large sample of U.K. and U.S. firms

Country	*N*		Firm-mean valuation errors (*AVE*)[b]		Firm-mean dirty surplus flows (*ATDSF*)[b]	
			Signed	Absolute	Signed	Absolute
All	7,778	*Mean*	0.221*	0.861	−0.001*	0.005
		Median	−0.186*	0.584	0.000*	0.001
U.K.	1,124	*Mean*	0.045	0.730	−0.003*	0.011
		Median	−0.198*	0.598	0.000*	0.006
U.S.	6,654	*Mean*	0.251*	0.884	−0.001*	0.004
		Median	−0.183*	0.582	0.000*	0.000
Prob-values for differences across countries		*Mean*[c]	<0.001	<0.001	<0.001	<0.001
		Median[d]	0.041	0.889	<0.001	<0.001

Panel B: Small sample of French, German, U.K. and U.S. firms

Country	*N*		Firm-mean valuation errors (*AVE*)[b]		Firm-mean dirty surplus flows (*ATDSF*)[b]	
			Signed	Absolute	Signed	Absolute
All	190	*Mean*	0.028	0.696	−0.009*	0.018
		Median	−0.245*	0.551	0.000*	0.007
France	51	*Mean*	−0.302*	0.515	0.001	0.010
		Median	−0.420*	0.465	0.001*	0.004
Germany	46	*Mean*	−0.168*	0.568	−0.011*	0.018
		Median	−0.354*	0.517	−0.003*	0.009
U.K.	43	*Mean*	0.243	0.830	−0.021*	0.038
		Median	−0.021	0.690	−0.004*	0.021
U.S.	50	*Mean*	0.360*	0.884	−0.007*	0.010
		Median	0.099	0.604	0.000*	0.003

Prob-values for differences across countries

	Firm-mean valuation errors *(AVE)*						Firm-mean dirty surplus flows *(ATDSF)*					
	Signed			Absolute			Signed			Absolute		
	France	Germany	U.K.	France	Germany	U.K.	France	Germany	U.K.	France	Germany	U.K.
Mean[c]												
Germany	0.226			0.421			0.017			0.091		
U.K.	0.001	0.018		0.004	0.021		0.007	0.263		<0.001	0.019	
U.S.	<0.001	0.004	0.586	0.001	0.008	0.712	0.053	0.381	0.080	0.894	0.082	<0.001
Median[d]												
Germany	0.263			0.402			<0.001			0.031		
U.K.	0.003	0.041		0.005	0.043		0.001	0.780		<0.001	0.006	
U.S.	0.001	0.013	0.616	0.002	0.020	0.926	<0.001	0.051	0.138	0.413	0.007	<0.001

[a] The table reports cross-country comparisons of firm-mean scaled valuation errors (*AVE*), based on both signed and absolute valuation errors, and cross-country comparisons of firm-mean scaled total dirty surplus flows (*ATDSF*), based on both signed and absolute dirty surplus flows. Panel A reports results for the large sample of U.K. and U.S. firms; Panel B reports results for the small sample of French, German, U.K. and U.S. firms. Means are computed using available data for 1994 to 2001. Valuation error is measured as the intrinsic value per share estimate less the observed share price, divided by the observed share price. Negative value estimates are set to zero.

[b] An asterisk next to an item indicates that it is significantly different from zero at the 5% level.

[c] Probability values based on a *t*-test of the null hypothesis of equality across pairs of countries of the mean of the firm-mean valuation errors or of the mean of the firm-mean total dirty surplus flows.

[d] Probability values based on a non-parametric Kruskal-Wallis test of the null hypothesis of equality across pairs of countries of the mean rank of the firm-mean valuation errors or of the firm-mean total dirty surplus flows.

described in Tables 1 and 2 and are used in regression models (7) and (8).[17] Results for the two-country large sample are given in Panel A, and results for the four-country small sample are given in Panel B. Each panel reports the means and medians of the firm-means of signed and absolute valuation errors and total dirty surplus flows, probability values from *t*-tests of the null hypothesis of equality of firm-mean valuation errors across pairs of countries, probability values from *t*-tests of the null hypothesis of equality of firm-mean total dirty surplus flows across pairs of countries, and corresponding non-parametric Kruskal-Wallis tests of the null hypothesis of equality of mean rank of the items across pairs of countries. Table 3 provides some evidence as to whether predicted relationships between valuation errors and total dirty surplus flows can be observed across countries. Recall that the earlier analysis predicts a negative relationship between signed valuation errors and signed dirty surplus flows, and a positive relationship between absolute valuation errors and absolute dirty surplus flows. We might therefore predict that countries with a relatively high (low) mean or median signed dirty surplus flow would have a relatively low (high) mean or median signed valuation error, and that countries with a relatively high (low) mean or median absolute dirty surplus flow would have a relatively high (low) mean or median absolute valuation error.

The large-sample results reported in Panel A are not consistent with these predictions. The mean of signed valuation errors is higher for the U.S. than for the U.K. but, inconsistent with our prediction, the mean of signed dirty surplus flows is also higher for the U.S. than for the U.K., with cross-country differences for both items being significant at the 5 per cent level. (Hereinafter, all references to statistical significance are to the 5 per cent level. Because of the possible existence in some cases of factors that counteract the predicted relationships, tests are two-sided.) Also, again inconsistent with our prediction, the mean of absolute valuation errors is higher for the U.S. than for the U.K. but the mean of absolute dirty surplus flows is higher for the U.K. than for the U.S., with cross-country differences for both items again being significant. Furthermore, the median valuation errors and dirty surplus flows reported in Panel A do not support our predictions: Although the median of absolute valuation errors and the median of absolute dirty surplus flows are both higher for the U.K. than for the U.S., the difference between the valuation errors is not significant. As with the large sample results, the small-sample results reported in Panel B reveal little evidence of the predicted relationships. Consistent with our predictions, the mean and median signed valuation errors for France are lower than those for all other countries, and are usually significantly different from these, and the mean and median signed dirty surplus flows for France are higher than the corresponding measures for all other countries, and are usually significantly different from these. However, there is no further evidence in the means and medians of the signed and absolute valuation errors and dirty surplus flows that is consistent with our predictions at the cross-country level.

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[17] The mean valuation errors and dirty surplus flows given in Table 3 are means of firm means, whereas the means given in Table 2 are means of firm-year observations. Since the number of firm-year observations used in calculating firm means differs across firms, the means reported in Tables 2 and 3 can differ from each other.

Overall, the results reported in Table 3 do not suggest that cross-country differences in valuation errors are associated with cross-country differences in dirty surplus flows in the manner predicted.

Table 4 reports the results of regression models (7) (for signed values) and (8) (for absolute values), where valuation errors and total dirty surplus flows are measured as firm-means over the entire sample period. It reports results for all countries taken together, and for each country separately. It also reports t-statistics from dummy-variable regression models in respect of tests of equality of the coefficient on total dirty surplus flows for pairs of countries. Panels A and B (Panels C and D) report results for the large and small samples, respectively, where total dirty surplus flows are measured inclusive (exclusive) of goodwill items.

Of the eight regression models labelled 'All', which are for pooled data from different countries, only the model using absolute dirty surplus flows inclusive of goodwill-related items for the two-country large sample (Panel A) has a significant β coefficient of the predicted sign (positive, in this case). Of the four countries, only the U.S. exhibits a pattern that is generally consistent with our predictions. For the large sample, where the U.S. data with and without goodwill are identical (Panels A and C), the coefficient β_1 on signed dirty surplus flows in regression model (7) is negative, although it is not significantly different from zero, and the coefficient β_2 on absolute dirty surplus flows in regression model (8) is positive and significantly different from zero. For the small sample for which results are reported in Panels B and D, where the U.S. data with and without goodwill-related items are different because of the merger-related item, the U.S. coefficient β_1 on signed dirty surplus flows in regression model (7) is negative and significant and the U.S. coefficient β_2 on absolute dirty surplus flows in regression model (8) is positive and significant, whether dirty surplus flows are stated inclusive or exclusive of goodwill-related items. From Panel D for the goodwill-exclusive sample, the French β_1 coefficient is significant and of the predicted negative sign, but other coefficients for France are not significant. Other results reported in Table 4 are generally inconsistent with our predictions, and some U.K. coefficients are significant but of the opposite sign to that predicted. From Panels A and C for the U.K. large sample when signed dirty surplus flows are measured both inclusive and exclusive of goodwill, β_1 is significant and opposite to the predicted negative sign; from Panel B for the U.K. small sample when absolute dirty surplus flows are measured inclusive of goodwill, β_2 is significant and opposite to the predicted positive sign.

We now consider the tests for equality across countries in the regression coefficients on total dirty surplus flows reported in Table 4. For the large sample of U.K. and U.S. firms where dirty surplus flows are stated inclusive of goodwill-related items (see Panel A), the U.K. and U.S. coefficients for signed data, β_1, are significantly different from each other, as are the corresponding coefficients for absolute data, β_2; where dirty surplus flows are stated exclusive of goodwill-related items (see Panel C), the U.K. and U.S. coefficients for signed data, β_1, are not significantly different from each other, but the corresponding coefficients for absolute data, β_2, are. For the four-country small sample where dirty surplus flows

TABLE 4

REGRESSION TESTS OF THE RELATIONSHIP BETWEEN FIRM-MEAN VALUATION ERRORS AND FIRM-MEAN TOTAL DIRTY SURPLUS FLOWS[a]

Panel A: Large sample of U.K. and U.S. firms—dirty surplus flows inclusive of goodwill

Country	N	Signed valuation errors			Absolute valuation errors		
		Intercept	$ATDSF$	R^2	Intercept	$\|ATDSF\|$	R^2
All	7,778	0.221 (15.552*)	3.187 (1.548)	0.001	0.809 (68.136*)	9.297 (6.485*)	0.009
U.K.	1,124	0.065 (2.346*)	7.443 (4.196*)	0.017	0.718 (29.217*)	0.900 (0.663)	0.000
U.S.	6,654	0.246 (15.463*)	−1.217 (−0.370)	0.000	0.813 (62.012*)	16.036 (7.665*)	0.019
t-statistics for difference across countries[b]			(2.319*)			(6.068*)	

Panel B: Small sample of French, German, U.K. and U.S. firms—dirty surplus flows inclusive of goodwill

Country	N	Signed valuation errors			Absolute valuation errors		
		Intercept	$ATDSF$	R^2	Intercept	$\|ATDSF\|$	R^2
All	190	0.030 (0.452)	−0.085 (−0.042)	0.000	0.695 (15.489*)	0.133 (0.085)	0.000
France	51	−0.301 (−4.455*)	−0.853 (−0.305)	0.001	0.522 (10.186*)	−0.612 (−0.360)	0.001
Germany	46	−0.155 (−1.609)	1.216 (0.575)	0.004	0.583 (10.370*)	−0.843 (−0.707)	0.005
U.K.	43	0.328 (1.927)	3.971 (1.817)	0.050	0.946 (8.196*)	−3.072 (−2.217*)	0.050
U.S.	50	0.262 (1.689)	−17.392 (−3.570*)	0.104	0.764 (7.090*)	13.288 (3.240*)	0.139

t-statistics for difference across pairs of countries^b

Country	Signed valuation errors			Absolute valuation errors		
	France	Germany	U.K.	France	Germany	U.K.
Germany	0.590			0.111		
U.K.	1.358	0.906		1.122	1.220	
U.S.	2.943*	3.504*	4.001*	3.131*	3.308*	3.779*

Panel C: Large sample of U.K. and U.S. firms—dirty surplus flows exclusive of goodwill

Country	N	Signed valuation errors			Absolute valuation errors		
		Intercept	*ATDSF*	R^2	Intercept	|*ATDSF*|	R^2
All	7,778	0.218 (15.600*)	0.148 (1.068)	0.000	0.853 (75.479*)	0.806 (1.002)	0.001
U.K.	1,124	0.040 (1.513)	0.261 (4.670*)	0.001	0.727 (39.354*)	0.050 (0.800)	0.000
U.S.	6,654	0.246 (15.463*)	−1.217 (−0.370)	0.000	0.813 (62.012*)	16.036 (7.665*)	0.019
t-statistics for difference across countries^b			0.449			7.638*	

TABLE 4

(CONTINUED)

Panel D: Small sample of French, German, U.K. and U.S. firms—dirty surplus flows exclusive of goodwill

Country	N	Signed valuation errors			Absolute valuation errors		
		Intercept	$ATDSF$	R^2	Intercept	$\lvert ATDSF \rvert$	R^2
All	190	0.024 (0.385)	–4.849 (–0.580)	0.007	0.630 (13.267*)	7.771 (1.660)	0.045
France	51	–0.281 (–4.036*)	–6.649 (–2.441*)	0.030	0.536 (9.901*)	–2.474 (–0.829)	0.012
Germany	46	–0.183 (–1.836)	–3.845 (–0.586)	0.007	0.570 (10.610*)	–0.219 (–0.055)	0.000
U.K.	43	0.259 (1.771)	9.708 (0.901)	0.037	0.722 (7.141*)	8.806 (1.150)	0.063
U.S.	50	0.323 (2.145*)	–17.594 (–2.628*)	0.066	0.759 (7.481*)	19.913 (8.199*)	0.176

t-statistics for difference across pairs of countries[b]

Country	Signed valuation errors			Absolute valuation errors		
	France	Germany	U.K.	France	Germany	U.K.
Germany	0.395			0.455		
U.K.	1.472	1.075		1.372	1.047	
U.S.	1.514	1.467	2.153*	5.820*	4.337*	1.382

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[a] This table reports, for the two-country large sample and the four-country small sample, the regression coefficients, t-statistics (in parentheses) and R^2 statistics for the following regression models:

$$AVE_i = \alpha_1 + \beta_1 ATDSF_i + \varepsilon_{1,i} \tag{7}$$

$$|AVE_i| = \alpha_2 + \beta_2 |ATDSF_i| + \varepsilon_{2,i}. \tag{8}$$

AVE_i ($|AVE_i|$) is the mean of the signed (absolute) valuation errors for firm i for the available years in the period 1994 to 2001. Valuation error is measured as the intrinsic value per share estimate less the observed share price, scaled by the observed share price. Negative value estimates are set to zero. $ATDSF_i$ ($|ATDSF_i|$) is the mean of the market-value-scaled signed (absolute) annual total dirty surplus flows for firm i over the available years in the same period. The α and β terms are regression coefficients and the ε terms are error terms. t-statistics are calculated using the heteroskedasticity-consistent covariance matrix estimator (White, 1980). An asterisk next to a t-statistic indicates that the regression coefficient is significantly different from zero at the 5% level. Panels A and B report results where dirty surplus flows are stated inclusive of goodwill and goodwill-related items, respectively; Panels C and D report results where dirty surplus flows are stated exclusive of goodwill and goodwill-related items, respectively. Goodwill-related items comprise both goodwill and issues of equity unrecorded due to merger accounting.

[b] t-statistics, based on dummy-variable regression models, from tests of the null hypothesis that the regression slope coefficient (β_1 or β_2) is equal across

are stated inclusive of goodwill-related items (see Panel B), the U.S. coefficient for signed data, β_1, is significantly different from the corresponding coefficients for France, Germany and the U.K., and this is also true of the U.S. coefficient for absolute data, β_2; where dirty surplus flows are stated exclusive of goodwill-related items (Panel D), the U.S. coefficient for signed data, β_1, is significantly different from the corresponding coefficient for the U.K. but is not significantly different from those for France and Germany; for absolute data, the U.S. coefficient, β_2, is significantly different from the corresponding coefficient for France and Germany. Throughout Table 4, wherever a U.S. coefficient is significantly different from that for another country, the U.S. coefficient is always more consistent with our prediction than the non-U.S. coefficient: For signed (absolute) data the U.S. coefficient is lower (higher) than the non-U.S. coefficient.

Overall, Table 4 does not provide strong evidence that dirty surplus flows are a consistent source of error in valuation models in the manner predicted. There is some indication that relationships between valuation error and dirty surplus flows for the U.S. are more in line with our predictions than those for other countries.

Table 5 reports the results of applying regression models (9) to (12) to the large U.K. sample and of applying regression models (13) to (16) to the large U.S. sample, where firms' yearly valuation errors are regressed on the firm-mean dirty surplus flows for the three years up to the valuation date. In each case, we report results for a univariate regression model in which the explanatory variable is total dirty surplus flows and for a multivariate regression model in which the explanatory variables are categories of dirty surplus flow. Because dirty surplus flows are categorized differently across the two countries in this large sample, we do not report the results of pooled regression models for the two countries taken together. Panel A reports results for signed values for the U.K. and the U.S., and Panel B reports results for absolute values for the U.K. and the U.S. In each case, we report in summary form the results of running the regression models individually for the six years from 1996 to 2001.[18] Beneath the results for each of the pooled regression models, we report the number of years out of six for which regression coefficients are (a) positive and significantly different from zero, and (b) negative and significantly different from zero. For signed values and absolute values, we also report the *t*-statistic from a test of equality of the coefficient on total dirty surplus flows for the U.K. and the U.S., and report the number of years out of six for which each country's coefficient is higher than and significantly different from the other's.

We first consider the results for the U.K. Panel A reports that the pooled coefficient on signed total dirty surplus flows (1.632) is positive and significant, as is the corresponding coefficient for each of the six individual years. This is consistent with results reported in Table 4, which suggest that the relationship between valuation errors and dirty surplus flows for the U.K. is not of the predicted negative sign. The coefficients from the U.K. multivariate regression models suggest that this is partly due to the effect of goodwill write-offs and asset revaluations,

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[18] For the tests reported in Tables 5 and 6, data for 1994 and 1995 are used only to measure three-year-mean dirty surplus flows prior to a valuation date.

TABLE 5

REGRESSION TESTS INCLUDING YEARLY VALUATION ERRORS AND MEAN DIRTY SURPLUS FLOWS OF LATEST THREE YEARS FOR THE LARGE SAMPLE OF U.K. AND U.S. FIRMS[a]

Panel A: Signed values—pooled for six years from 1996 to 2001

	N	Intercept	*TDSF3*	*PYA3*	*GW3*	*AR3*	*CUR3*	R^2
U.K.								
Univariate regression model coefficients	3,335	0.096	1.632					0.033
t-statistics		(5.647*)	(3.436*)					
Multivariate regression model coefficients	3,335	0.039		0.733	0.965	5.696	–3.030	0.068
t-statistics		(2.183*)		(1.509)	(3.068*)	(10.327*)	(–1.878)	
Number of years for which coefficient is positive and significantly different from zero			*6*	*2*	*5*	*5*	*0*	
Number of years for which coefficient is negative and significantly different from zero			*0*	*1*	*0*	*0*	*3*	
	N	Intercept	*TDSF3*	*CUR3*	*MSEC3*	*PEN3*		R^2
U.S.								
Univariate regression model coefficients	17,541	0.348	–6.086					0.001
t-statistics		(27.288*)	(–3.244*)					
Multivariate regression model coefficients	17,541	0.355		3.192	–13.457	–8.310		0.002
t-statistics		(27.544*)		(1.698)	(–3.723*)	(–1.569)		
Number of years for which coefficient is positive and significantly different from zero			*2*	*1*	*2*	*0*		
Number of years for which coefficient is negative and significantly different from zero			*3*	*1*	*3*	*1*		
t-statistic from test of equality of coefficient on *TDSF3* for U.K. and U.S.[b]			3.988*					
Number of years for which U.K. coefficient on TDSF3 is higher than and significantly different from U.S. coefficient			*3*					
Number of years for which U.S. coefficient on TDSF3 is higher than and significantly different from U.K. coefficient			*2*					

Panel B: Absolute values—pooled for six years from 1996 to 2001

	N	Intercept	*TDSF3*	*PYA3*	*GW3*	*AR3*	*CUR3*	R^2
U.K.								
Univariate regression model coefficients	3,335	0.709	0.313					0.003
t-statistics		(58.820*)	(2.265*)					
Multivariate regression model coefficients	3,335	0.685		0.205	−0.148	2.687	2.437	0.032
t statistics		(56.897*)		(1.630)	(−1.552)	(6.225*)	(2.054*)	
Number of years for which coefficient is positive and significantly different from zero			*3*	*0*	*2*	*3*	*3*	
Number of years for which coefficient is negative and significantly different from zero			*0*	*0*	*1*	*2*	*1*	

	N	Intercept	*TDSF3*	*CUR3*	*MSEC3*	*PEN3*		R^2
U.S.								
Univariate regression model coefficients	17,541	0.909	11.581					0.007
t-statistics		(79.737*)	(7.171*)					
Multivariate regression model coefficients	17,541	0.936		−13.888	19.833	−9.453		0.019
t-statistics		(76.351*)		(−6.872*)	(6.831*)	(−2.534*)		
Number of years for which coefficient is positive and significantly different from zero			*5*	*0*	*5*	*0*		
Number of years for which coefficient is negative and significantly different from zero			*0*	*5*	*0*	*1*		
t-statistic from test of equality of coefficient on *TDSF3* for U.K. and U.S.[b]			6.951*					
Number of years for which U.K. coefficient on TDSF3 is higher than and significantly different from U.S. coefficient			*2*					
Number of years for which U.S. coefficient on TDSF3 is higher than and significantly different from U.K. coefficient			*4*					

TABLE 5

(CONTINUED)

[a] This table reports results for the two-country large sample for which dirty surplus flow data are obtained from financial databases. It reports for each year the results of regression models that include the valuation error for the year (dependent variable) and the mean of market-value-scaled dirty surplus flows for the three years up to the valuation date (explanatory variables). t-statistics are reported in parentheses beneath the regression coefficients. These are calculated using the heteroskedasticity-consistent covariance matrix estimator (White, 1980). An asterisk next to a t-statistic indicates that the regression coefficient is significantly different from zero at the 5% level.
Regression models are as follows for the U.K.:

$$VE_{i,t} = \alpha_{31} + \beta_{31}TDSF3_{i,t} + \varepsilon_{31,i,t} \tag{9}$$

$$VE_{i,t} = \alpha_{32} + \beta_{32}PYA3_{i,t} + \beta_{33}GW3_{i,t} + \beta_{34}AR3_{i,t} + \beta_{35}CUR3_{i,t} + \varepsilon_{32,i,t} \tag{10}$$

$$|VE_{i,t}| = \alpha_{41} + \beta_{41}|TDSF3_{i,t}| + \varepsilon_{41,i,t} \tag{11}$$

$$|VE_{t,t}| = \alpha_{42} + \beta_{42}|PYA3_{i,t}| + \beta_{43}|GW3_{i,t}| + \beta_{44}|AR3_{i,t}| + \beta_{45}|CUR3_{i,t}| + \varepsilon_{42,i,t}. \tag{12}$$

Regression models are as follows for the U.S.:

$$VE_{i,t} = \alpha_{51} + \beta_{51}TDSF3_{i,t} + \varepsilon_{51,i,t} \tag{13}$$

$$VE_{i,t} = \alpha_{52} + \beta_{52}MSEC3_{i,t} + \beta_{53}PEN3_{i,t} + \beta_{54}CUR3_{i,t} + \varepsilon_{52,i,t} \tag{14}$$

$$|VE_{i,t}| = \alpha_{61} + \beta_{61}|TDSF3_{i,t}| + \varepsilon_{61,i,t} \tag{15}$$

$$|VE_{i,t}| = \alpha_{62} + \beta_{62}|MSEC3_{i,t}| + \beta_{63}|PEN3_{i,t}| + \beta_{64}|CUR3_{i,t}| + \varepsilon_{62,i,t}. \tag{16}$$

$VE_{i,t}(|VE_{i,t}|)$ is the signed (absolute) valuation error for firm i at valuation date t. Valuation error is measured as the intrinsic value per share estimate less the observed share price, scaled by the observed share price. Negative value estimates are set to zero. $TDSF3_{i,t}$ ($|TDSF3_{i,t}|$) is the mean of the annual market-value-scaled signed (absolute) total dirty surplus flows for firm i for the three years up to the valuation date t, and $PYA3$, $GW3$, $AR3$, $CUR3$, $MSEC3$ and $PEN3$ denote the corresponding measures for the following individual classes of dirty surplus flow: prior-year adjustments, goodwill write-offs, asset revaluations, currency translation differences, unrealized gains and losses on marketable securities, and minimum pension liability adjustments. The α and β terms are regression coefficients and the ε terms are error terms. Beneath each set of regression results, we report the number of years out of six for which the corresponding coefficient is positive and significantly different from zero at the 5% level, and the number of years out of six for which the corresponding coefficient is negative and significantly different from zero at the 5% level.

[b] t-statistics, based on dummy-variable regression models, from tests of the null hypothesis that pairs of regression slope coefficients (β_{31} and β_{51} or β_{41} and β_{61}) are equal across the two countries. An asterisk indicates that the coefficients are significantly different from each other at the 5% level.

each of which has a significant positive coefficient in the pooled model (0.965 and 5.696, respectively) and significant positive coefficients for five of the six years. It is possible that the positive relationship between valuation errors and goodwill write-offs is driven by the relationship between goodwill write-offs and value-relevant growth opportunities, and that this effect swamps the 'omitted expense' property of the omitted goodwill write-off, but it is not clear why signed valuation errors should be positively associated with asset revaluations. Panel B reports that, although there is some evidence of the predicted positive relationship between absolute valuation errors and absolute dirty surplus flows for the U.K., the evidence is weak. The pooled coefficient on absolute total dirty surplus flows (0.313) is positive and significant, but significant positive coefficients are reported for only three of the six years. The coefficients from the multivariate regression models suggest that the positive relationship between absolute valuation errors and absolute total dirty surplus flows is partly due to the effect of asset revaluations and currency translation differences. Each of these items has a significant positive coefficient in the pooled model, although in each case significant positive coefficients are only found in three of the six years.

For the U.S., we note that the predicted negative relationship between signed valuation errors and signed total dirty surplus flows reported in Table 4 is also observed in the pooled univariate regression model results in Panel A of Table 5. The pooled coefficient for signed total dirty surplus flows (–6.086) is negative and significant. However, a significant negative coefficient is reported for only three of the six years, and in two of the remaining years a significant positive coefficient is reported. The results of the multivariate regression models suggest that the negative relationship is partly due to the effect of unrealized gains and losses on marketable securities, for which the regression coefficient in the pooled regression (–13.457) is negative and significant, although a significant negative coefficient is only reported in three of the six years. It is notable that, for both total dirty surplus flows and unrealized gains and losses on marketable securities, the three years for which the coefficients are of the predicted negative sign and significant are 1999, 2000 and 2001. These years post-date SFAS 130, which is effective for fiscal years beginning after 15 December 1997. This result is consistent with the finding of Kanagaretnam *et al.* (2005) that the association between dirty surplus flows and share returns is stronger in periods that post-dated the implementation of SFAS 130 than in periods that pre-dated its implementation.[19] The predicted positive relationship between absolute valuation errors and absolute total dirty surplus flows for the U.S. reported in Table 4 is also observed in the U.S. results in Panel B of Table 5. The pooled coefficient on total absolute dirty surplus flows (11.581) is positive and significant, and significant positive coefficients are also reported in five of the six years. Again, the results of the multivariate regression models suggest that the relationship observed in the univariate regression model is partly due to the effect of unrealized gains and losses on marketable securities. The coefficient (19.833) is positive and significant, and there is a positive significant coefficient in five of the six years.

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[19] There were no other notable patterns across time in the yearly regression coefficients.

With regard to the tests for equality of regression slope coefficients across countries, the results reported in Table 5 are not very conclusive. For signed values the pooled coefficient on total dirty surplus flows for the U.S. is significantly lower than that for the U.K. (*t*-statistic: 3.988), but the U.S. coefficient is significantly lower than the U.K. coefficient in only three of the six years and is significantly higher in two years. For absolute values the pooled coefficient for the U.S. is significantly higher than that for the U.K. (*t*-statistic: 6.951), but the U.S. coefficient is significantly higher than the U.K. coefficient in only four of the six years and is significantly lower in two years. Similar to the results reported in Table 5, the U.S. coefficients on total dirty surplus flows are more in line with our predictions than the corresponding non-U.S. coefficients. However, there is no consistent pattern in the yearly regression results.

Overall, Table 5 reveals some evidence of predicted relationships between valuation errors and dirty surplus flows, particularly in the case of the U.S. However, the direction of the relationships is not consistent across time. In cross-country comparisons, there is some evidence that relationships between valuation errors and dirty surplus flows in the U.S. are closer to those predicted than are those observed in the U.K., but the pattern of these differences is not consistent across time.

Table 6 reports the results of applying regression models (17) to (20) to the four-country small sample. As with the large sample, firms' yearly valuation errors are regressed on the firm-mean dirty surplus flows for the three years up to the valuation date, and we report results for univariate regression models with total dirty surplus flows and for multivariate regression models with categories of dirty surplus flow. In the small sample, common categories of dirty surplus flows are used for all four countries, and we therefore report results for all four countries taken together, as well as results for single-countries. Panel A reports results for signed values and Panel B reports results for absolute values. As in Table 5, we report in summary form the results of running the regression models individually for the six years from 1996 to 2001 inclusive: For each of the pooled regression models, we report the number of years out of six for which regression coefficients are (a) positive and significantly different from zero, and (b) negative and significantly different from zero. For signed values and absolute values, we also report *t*-statistics from tests of equality across pairs of countries in the regression coefficients.

Panel A of Table 6 reports that the coefficient on signed total dirty surplus flows for all four countries taken together for the six years (1.843) is positive and significant, contrary to our prediction, with significant positive coefficients being reported in three of the six years. The four-country multivariate regression results suggest that this is partly due to the effect of goodwill-related items and asset revaluations, both of which have significant positive coefficients (1.391 and 9.144, respectively). None of the coefficients on absolute total dirty surplus flows are significant. In the regression models for individual countries, the only country with the predicted negative coefficient on total signed dirty surplus flows is the U.S. (–1.883), although this is not significantly different from zero and a significant negative coefficient is only reported in one of the six years. France, Germany and

TABLE 6

REGRESSION TESTS INCLUDING YEARLY VALUATION ERRORS AND MEAN DIRTY SURPLUS FLOWS OF LATEST THREE YEARS FOR THE FOUR-COUNTRY SMALL SAMPLE[a]

Panel A: Signed values—pooled for six years from 1996 to 2001

	N	Intercept	*TDSF3*	*PYA3*	*GWGM3*	*AR3*	*OTH3*	R^2
All	581	0.118 (2.416*)	1.843 (3.815*)					0.010
	581	0.112 (2.287*)		–26.574 (–1.816)	1.391 (3.168*)	9.144 (2.920*)	5.742 (1.348)	0.020
Years +ve and significant			*3*	*0*	*1*	*2*	*1*	
Years –ve and significant			*0*	*4*	*0*	*0*	*0*	
France	135	–0.320 (–8.472*)	1.404 (3.002*)					0.018
	135	–0.317 (–8.136*)		NA	1.610 (2.496*)	28.613 (0.257)	0.709 (0.616)	0.018
Years +ve and significant			*3*		*2*	*0*	*0*	
Years –ve and significant			*1*		*0*	*2*	*2*	
Germany	118	–0.124 (–2.121*)	0.651 (0.955)					0.003
	118	–0.151 (–2.415*)		–11.641 (–4.914*)	1.409 (3.629*)	NA	–10.483 (–1.747)	0.055
Years +ve and significant			*3*	*2*	*4*		*0*	
Years –ve and significant			*0*	*1*	*0*		*0*	
U.K.	152	0.270 (3.103*)	3.591 (4.992*)					0.111
	152	0.161 (1.726)		–24.667 (–1.698)	2.094 (3.911*)	11.531 (7.288*)	0.676 (0.100)	0.197
Years +ve and significant			*3*	*1*	*3*	*3*	*2*	
Years –ve and significant			*0*	*3*	*0*	*1*	*2*	

TABLE 6

(CONTINUED)

Panel A: Signed values—pooled for six years from 1996 to 2001 (continued)

	N	Intercept	*TDSF3*	*PYA3*	*GWGM3*	*AR3*	*OTH3*	R^2
U.S.	181	0.602 (4.301*)	–1.883 (–0.390)					0.002
	181	0.587 (4.394*)		3.483 (–0.013)	–3.615 (–0.714)	NA	50.728 (4.386*)	0.066
Years +ve and significant			*1*	*3*	*1*		*6*	
Years –ve and significant			*1*	*1*	*1*		*0*	
t-statistics for differences across countries^b:								
France vs Germany			0.651	NA	1.586	NA	0.366	
France vs U.K.			2.093*	NA	0.443	0.990	0.504	
France vs U.S.			0.201	NA	1.614	NA	7.729*	
Germany vs U.K.			2.726*	0.306	0.453	NA	0.612	
Germany vs U.S.			0.512	1.186	0.985	NA	6.068*	
U.K. vs U.S.			0.969	1.030	1.087	NA	3.690*	

Panel B: Absolute values—pooled for six years from 1996 to 2001

	N	Intercept	*TDSF3*	*PYA3*	*GWGM3*	*AR3*	*OTH3*	R^2
All	581	0.715 (18.921*)	0.357 (0.826)					0.001
	581	0.673 (15.980*)		12.073 (0.898)	–0.252 (–0.812)	2.899 (1.091)	5.903 (1.837)	0.016
Years +ve and significant			*0*	*1*	*0*	2	*1*	
Years –ve and significant			*0*	*0*	*0*	2	*0*	

France	135	0.463 (17.420*)	0.231 (0.458)					0.001
	135	0.487 (16.032*)		NA	1.008 (1.640)	−189.284 (−2.049*)	−2.413 (−1.684)	0.036
Years +ve and significant			*0*		*2*	*1*	*0*	
Years −ve and significant			*0*		*0*	*2*	*3*	
Germany	118	0.503 (15.005*)	0.253 (0.609)					0.001
	118	0.477 (11.456*)		3.180 (2.562*)	0.039 (0.083)	NA	4.045 (0.774)	0.016
Years +ve and significant			*0*	*1*	*0*		*1*	
Years −ve and significant			*0*	*0*	*0*		*2*	
U.K.	152	0.805 (12.625*)	−0.113 (−0.223)					0.000
	152	0.774 (11.193*)		−19.251 (−2.597*)	−1.097 (−2.153*)	5.919 (3.597*)	1.404 (0.364)	0.123
Years +ve and significant			*0*	*0*	*1*	*2*	*0*	
Years −ve and significant			*0*	*0*	*0*	*2*	*0*	
U.S.	181	1.035 (8.730*)	5.794 (1.363)					0.033
	181	0.927 (8.299*)		347.605 (2.160*)	4.105 (0.911)	NA	18.227 (4.105*)	0.087
Years +ve and significant			*0*	*2*	*0*		*3*	
Years −ve and significant			*1*	*1*	*0*		*0*	
t-statistics for differences across countries^b:								
France vs Germany			0.583	NA	1.756	NA	0.033	
France vs. U.K.			0.070	NA	2.920*	3.356*	0.631	
France vs. U.S.			1.387	NA	0.547	NA	6.378*	
Germany vs. U.K.			0.935	1.749	2.273*	NA	0.582	
Germany vs U.S.			1.211	4.827*	0.222	NA	5.117*	
U.K. vs U.S.			1.491	4.581*	1.928	NA	2.240*	

Table 6

(continued)

[a] This table reports results for the four-country small sample, for which dirty surplus flow data are obtained from the Isidro *et al.* (2004) hand-collected database. It reports for each year the results of regression models that include the valuation error for the year (dependent variable) and the mean of market-value-scaled dirty surplus flows for the three years up to the valuation date (explanatory variables). *t*-statistics are reported in parentheses beneath the regression coefficients. These are calculated using the heteroskedasticity-consistent covariance matrix estimator (White, 1980). An asterisk next to a *t*-statistic indicates that the regression coefficient is significantly different from zero at the 5% level.
Regression models are as follows:

$$VE_{i,t} = \alpha_{71} + \beta_{71} TDSF3_{i,t} + \varepsilon_{71,i,t} \tag{17}$$

$$VE_{i,t} = \alpha_{72} + \beta_{72} PYA3_{i,t} + \beta_{73} GWGM3_{i,t} + \beta_{74} AR3_{i,t} + \beta_{75} OTH3_{i,t} + \varepsilon_{72,i,t} \tag{18}$$

$$|VE_{i,t}| = \alpha_{81} + \beta_{81} |TDSF3_{i,t}| + \varepsilon_{81,i,t} \tag{19}$$

$$|VE_{i,t}| = \alpha_{82} + \beta_{82} |PYA3_{i,t}| + \beta_{83} |GWGM3_{i,t}| + \beta_{84} |AR3_{i,t}| + \beta_{85} |OTH3_{i,t}| + \varepsilon_{82,i,t}. \tag{20}$$

$VE_{i,t}$ ($|VE_{i,t}|$) is the signed (absolute) valuation error for firm *i* at valuation date *t*. Valuation error is measured as the intrinsic value per share estimate less the observed share price, scaled by the observed share price. Negative value estimates are set to zero. $TDSF3_{i,t}$ ($|TDSF3_{i,t}|$) is the mean of the annual market-value-scaled signed (absolute) total dirty surplus flows for firm *i* for the three years up to the valuation date *t*, and *PYA3*, *GWGM3*, *AR3* and *OTH3* denote the corresponding measures for the following individual classes of dirty surplus flow: prior-year adjustments, goodwill write-offs including issues of equity unrecognized due to merger accounting, asset revaluations and other flows. 'Other flows' comprise among other things currency translation differences, unrealized gains and losses on marketable securities, minimum pension liability adjustments, unrealized gains and losses on derivative instruments, certain consolidation adjustments and subsidies. Asset revaluations are not applicable in Germany and the U.S., and prior-year adjustments did not arise in the French sample. NA denotes 'not applicable'. The α and β terms are regression coefficients and the ε terms are error terms. *Beneath each set of regression results, we report* the number of years out of six for which the corresponding coefficient is positive and significantly different from zero (years +ve and significant) and the number of years out of six for which the corresponding coefficient is negative and significantly different from zero (years –ve and significant). The number of cases used in the four-country pooled regression models differs slightly from the sum of the numbers of cases used in the individual-country regression models, due to the outlier deletion procedure.

[b] *t*-statistics, *based on dummy-variable regression models, from tests of the null hypothesis that the regression slope coefficient* (β *coefficient*) is equal across pairs of countries. An asterisk indicates that the coefficients are significantly different from each other at the 5% level. NA denotes 'not applicable'.

the U.K. each have positive coefficients (1.404, 0.651 and 3.591, respectively), with the coefficients for France and the U.K. being significantly different from zero and significant positive coefficients being reported in three of the six years for each of these three countries. On the evidence of the multivariate regression models, the positive coefficients for France, Germany and the U.K. are partly due to the effect of the goodwill-related item, which has a significant positive coefficient for each of these three countries (1.610, 1.409 and 2.094, respectively). Panel B reports that France, Germany and the U.S. each have positive coefficients on absolute total dirty surplus flows in the pooled regression (0.231, 0.253 and 5.794, respectively) and that the U.K. has a negative coefficient (–0.113). However, none of these coefficients are significant, nor are all but one of the corresponding yearly coefficients.

In the tests of equality across pairs of countries in the regression coefficients on total dirty surplus flows, there are few cases of significant cross-country differences. Coefficients on signed total dirty surplus flows reported in Table 6, Panel A, are significantly different from each other for France/U.K. and for Germany/U.K.; from Table 6, Panel B, there are no significant cross-country differences in coefficients on absolute total dirty surplus flows. Consistent with Tables 4 and 5, the U.S. coefficient on signed total dirty surplus flows is lower than those for the other countries and the U.S. coefficient on absolute total dirty surplus flows is higher than those for the other countries, but none of the differences between the U.S. coefficient and the coefficient for the other country are significant. For individual categories of flow, significant differences are reported for the following items and pairs of countries: for the signed data, other items for France/U.S., Germany/U.S. and U.K./U.S.; for the absolute data, prior-year adjustments for Germany/U.S. and U.K./U.S., goodwill-related items for France/U.K. and Germany/U.K., asset revaluations for France/U.K., and other items for France/U.S., Germany/U.S. and U.K./U.S. Although many of the significant differences at the individual-flow level involve the U.S., there is no consistent pattern whereby the U.S. coefficients are more in line with our predictions than the coefficients of other countries.

Overall, the results for the four-country small sample reported in Table 6 reveal little evidence of predicted relationships between valuation errors and dirty surplus flows. For the U.S., there is some relatively weak evidence that is consistent with predictions. For other countries, due partly to the effect of goodwill-related items, the results conflict with predictions. Tests for cross-country differences in the relationship between valuation errors and dirty surplus flows reveal no clear pattern.

Sensitivity Tests

We test the sensitivity of our results to a number of alternative approaches. First, following Lee *et al.* (1999), we implement the valuation models by using additional periodic flows generated under the assumption that return on equity is expected to fade to the industry mean over a number of years, rather than by assuming a constant rate of growth in residual income after year 3. Second, we eliminate as outliers the 1 per cent most extreme observations at either end of the distribution for both valuation errors and dirty surplus flows, instead of the 2 per cent most extreme observations eliminated in the tests for which results are reported above. Third, we repeat all of our regressions using the ranks of the variables rather than the variables themselves. None of these alternative approaches materially alters the pattern of results reported above.

Summary of Results

Our empirical work provides some weak evidence of the predicted relationships between valuation errors and dirty surplus flows for the U.S., but provides little such evidence for other countries. For countries other than the U.S., some relationships between valuation errors and dirty surplus flows are contrary to our predictions, due in part to the effect of goodwill-related items. The overall impression conveyed by our results is that omission of forecast dirty surplus accounting flows is not a consistent source of valuation error in empirical applications of RIVM. This suggests either that investors believe that realized flows are not related to expected future flows or that any flows that are predictable from current flows are only likely to impact dividends in the distant future, with the result that they are insignificant in present value terms. With regard to cross-country differences in respect of the relationship between valuation errors and dirty surplus flows, there is some limited evidence of cross-country difference in the relationship between valuation errors and dirty surplus flows, mostly involving the U.S. Where differences arise, the U.S. relationship between valuation errors and dirty surplus flows is usually more in line with our prediction than the corresponding relationship for the other country.

CONCLUSION

This paper explores the relationship between violations of the clean surplus relationship and valuation errors from a standard constant-growth continuing-value implementation of the residual income valuation model, where inputs are constructed under the assumption that the clean surplus relationship holds. These valuation errors are equivalent to those from a corresponding and consistent implementation of the abnormal earnings growth model. We treat realizations of dirty surplus flows as proxies for expected future dirty surplus flows, and investigate empirically the relationship between our valuation errors and those dirty surplus flows. We use both a large sample of data for the U.K. and the U.S., where dirty surplus flows can be measured relatively reliably using machine-readable data, and a small sample for France, Germany, the U.K. and the U.S., which allows us to report comparative evidence for countries where such flows are important but can only reliably be measured by direct reference to financial statements. Our analysis predicts that signed (absolute) valuation errors will be negatively (positively) associated with signed (absolute) dirty surplus flows. We find weak evidence of predicted relationships in the U.S. but not elsewhere. The lack of the predicted relationship elsewhere appears to be due in part to the effect of goodwill write-offs, which may proxy for the existence of growth opportunities. Motivated by concern that the effect of dirty surplus accounting on the applicability of accounting-based valuation models might vary across countries, we also document differences across pairs of countries in the relationship between valuation error and dirty surplus flows. There is some limited evidence of cross-country difference in the relationship between these items, mostly involving the U.S. Where differences arise, the U.S. relationship between valuation errors and dirty surplus flows is usually more in line with our prediction than the corresponding relationship for the other country. Overall, our results do not suggest that dirty surplus flows are a consistent source of error in applications of accounting-based valuation models, or that cross-country differences in dirty surplus accounting introduce significant problems in international application of those models.

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APPENDIX

EQUIVALENCE OF RIVM AND AEGM WHEN CSR IS ASSUMED AND CONSISTENT GROWTH ASSUMPTIONS ARE USED

Following Penman (2005, p. 369), we explain in this Appendix why the empirical formulation of RIVM used in this paper, where inputs are constructed under the assumption that CSR holds, is equivalent to a corresponding empirical formulation of AEGM, provided that consistent growth assumptions are used in both models. We first describe AEGM in general terms, and then show the equivalence between the empirical formulation of RIVM used in this paper and a corresponding formulation of AEGM.

AEGM can be derived by defining y_{t+s} in (2) as the expectation at time t of earnings at time $t + s + 1$, capitalized as a perpetuity as at time $t + s$ (Ohlson, 2005):

$$y_{t+s} = \frac{E_t[x_{t+s+1}]}{r}.$$

Substitution of this into (2) gives

$$\begin{aligned} V_t &= \frac{E_t[x_{t+1}]}{r} + \sum_{s=1}^{\infty} \frac{\frac{E_t[x_{t+s+1}]}{r} + d_{t+s} - (1+r)\frac{E_t[x_{t+s}]}{r}}{(1+r)^s} \\ &= \frac{E_t[x_{t+1}]}{r} + \sum_{s=1}^{\infty} \frac{E_t[(x_{t+s+1} - x_{t+s}) - r(x_{t+s} - d_{t-s})]}{r(1+r)^s}. \end{aligned}$$

Defining abnormal earnings growth for time $t + s + 1$, denoted aeg_{t+s+1}, as

$$aeg_{t+s+1} = (x_{t+s+1} - x_{t+s}) - r(x_{t+s} - d_{t+s}),$$

gives AEGM:

$$V_t = \frac{E_t[x_{t+1}]}{r} + \sum_{s=1}^{\infty} \frac{E_t[aeg_{t+s+1}]}{r(1+r)^s}. \tag{AEGM}$$

AEGM expresses the intrinsic value of equity as the capitalized next-period expected earnings plus the present value of the capitalized forecast abnormal earnings growth of subsequent periods, where abnormal earnings growth is the difference between periodic earnings change and a normal return on previous-period retained earnings.

An infinite-horizon version of the empirical formulation of RIVM given in (5) can be seen to be equivalent to a corresponding infinite-horizon formulation of AEGM by recognizing the following three relationships. First,

$$xps_{t+1} = r.bps_t + xps^a_{t+1}.$$

Second,

$$\frac{1}{(1+r)^s} = \frac{1}{r(1+r)^{s-1}} - \frac{1}{r(1+r)^s}.$$

Third, because the empirical formulation of RIVM described in (5) sets $xps_{t+s} - dps_{t+s}$ equal to $bps_{t+s} - bps_{t+s-1}$ in accordance with the CSR assumption, abnormal earnings growth per share, denoted *aegps* and defined as change in earnings per share less the product of the cost of equity and prior-period retained earnings per share, is equal to the change in residual income per share:

$$\begin{aligned} aegps_{t+s+1} &= (xps_{t+s+1} - xps_{t+s}) - r(xps_{t+s} - dps_{t+s}) \\ &= (xps_{t+s+1} - r.bps_{t+s}) - (xps_{t+s} - r.dps_{t+s-1}) \\ &= xps^a_{t+s+1} - xps^a_{t+s} \\ &= \Delta xps^a_{t+s+1}, \end{aligned}$$

where Δ denotes the first difference. These three relationships give rise to the following equivalence between an infinite-horizon formulation of RIVM and a corresponding infinite-horizon formulation of AEGM:

$$\begin{aligned} VPS_t &= bps_t + \sum_{s=1}^{\infty} \frac{xps^a_{t+s}}{(1+r)^s} \\ &= \frac{xps_{t+1}}{r} - \frac{xps^a_{t+1}}{r} + \sum_{s=1}^{\infty} xps^a_{t+s}\left(\frac{1}{r(1+r)^{s-1}} - \frac{1}{r(1+r)^s}\right) \\ &= \frac{xps_{t+1}}{r} + \sum_{s=1}^{\infty} \frac{\Delta xps^a_{t+s+1}}{r(1+r)^s} \\ &= \frac{xps_{t+1}}{r} + \sum_{s=1}^{\infty} \frac{aegps^a_{t+s+1}}{r(1+r)^s}. \end{aligned}$$

This equivalence can be extended to the constant-growth continuing-value case by recognizing (a) that the empirical procedure envisaged above gives abnormal earnings growth equal to the first difference of residual income and (b) that constant growth in the level of an item after time $t + T + 1$ implies constant growth in the first difference of that item after time $t + T + 2$. If the residual incomes generated by the CSR-compliant procedure described above are expected to grow at the constant rate of g after time $t + T + 1$, then the corresponding abnormal earnings growths are expected to grow at this same constant rate after time $t + T + 2$, and the continuing-value formulations of RIVM and AEGM given below are equivalent:

$$VPS_t = bps_t + \sum_{s=1}^{T} \frac{xps^a_{t+s}}{(1+r)^s} + \frac{xps^a_{t+T+1}}{(1+r)^T(r-g)}$$

$$= \frac{xps_{t+1}}{r} + \sum_{s=1}^{T} \frac{aegps_{t+s+1}}{r(1+r)^s} + \frac{aegps_{t+T+2}}{r(1+r)^T(r-g)}.$$

Note that it cannot be assumed that a constant rate of growth in residual income after time $t + T + 1$ implies the same constant rate of growth in abnormal earnings growth after time $t + T + 1$. Nor can it be assumed that a constant rate of growth in abnormal earnings growth after time $t + T + 2$ implies the same constant rate of growth in residual income after time $t + T + 1$. Either assumption could give rise to inconsistency between the inputs to constant-growth continuing-value formulations of RIVM and AEGM, and to differences between the value estimates given by the two models.

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ANN TARCA

Discussion of Isidro, O'Hanlon and Young

In recent years, two important issues for standard setters have been the harmonization of accounting requirements and the matter of whether all items of income should flow through the income statement (the clean surplus relationship) or whether it is appropriate that some items be permitted to bypass the income statement and be recorded directly in equity (described as dirty surplus flows). Isidro, O'Hanlon and Young (hereafter IOY) provide empirical evidence which is relevant to both these issues, thus making a timely contribution to the debate about financial reporting requirements.

The aim of IOY's study is to explore the relationship between dirty surplus accounting flows and valuation errors arising from the application of two widely used valuation models, namely the residual income valuation model (RIVM) and the abnormal earnings growth valuation model (AEGM). Dirty surplus accounting flows (DSF) arise when the clean surplus relationship is violated, that is, items of income, expense, gains and losses are taken directly to equity or comprehensive income, thus bypassing the income statement. Consequently they are not included in a firm's current period income figure, which is the focus of considerable scrutiny in financial markets. The assumption underlying this study, and it is a reasonable one, is that exclusion of accounting flows from income could give rise to valuation errors. Specifically, the authors propose that valuation errors from the AEGM and RIVM models are inversely related to the expected future DSF that are disregarded within the models. Based on this prediction, we would expect that when DSF are greater, firm valuation is less accurate.

This theoretical proposition is then tested in a practical setting. The relationship of DSF and valuation errors is explored for a sample of firms from France, Germany, the U.K. and the U.S.A. Thus the paper aims to contribute on two fronts. First, it has the potential to extend our understanding of the relationship of DSF and valuation error for two widely used valuation models. Second, it examines the relationship in four selected countries to see whether there is any empirical evidence of the relationship, and if it differs between firms from different countries.

BACKGROUND

Definition and Meaning of Valuation Error

Valuation error is measured by the authors as the intrinsic value per share less the observed share price, divided by the observed share price. Thus the error represents

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the difference between firm value as estimated by valuation models (RIVM or AEGM) and as determined in capital markets. Stated another way, the error captures the differences between value based on the models and value attributed by investors.

What does the valuation error mean? It reflects the difference between valuation based on share price and that derived from the models. Let us assume the market is efficient in the semi-strong form, and securities are priced in the market according to publicly available information. Therefore share price reflects a consensus valuation based on past evidence and market participants' estimation of future events. On the other hand, the valuation models provide a method to estimate value which is not based on share price. RIVM uses book value of equity plus the present value of residual incomes, and AEGM relies on a prediction of earnings capitalized in perpetuity (Ohlson, 2005). It is unlikely that the models will provide the same valuation as share price, given differences in how each valuation is determined. The question of interest addressed in this paper is whether including additional information (in this case, DSF) in the inputs of the models could improve the valuation estimate obtained from them, assuming that the share price is the 'correct' value. The study provides another way of considering the question whether DSF items are relevant to valuation. If they are, we could expect that they are part of the additional information used by investors. In this case, we may observe that omitted DSF items are associated with valuation error.

Accounting Using 'Dirty Surplus'

In the Edwards/Bell/Ohlson world, DSF flows are no different from other accounting flows. However, in practice they receive different treatment from other accounting flows which are included in income and are contained in a firm's income figure. DSF items are not included in income but are transferred to equity, either directly or as a component of comprehensive income.

Several factors could influence the relevance of DSF for investors. They include the nature of the specific items and investors' estimation of the permanence of the items. DSF items included in IOY's study relate to the following: prior period adjustments for changes in accounting standards, goodwill write-offs and merger accounting adjustments, asset revaluations, foreign currency translation, and change in value of marketable securities, derivatives and pensions obligations.

The IASB Framework (para. 74) defines income to include both revenue and gains, implying that the same recognition and measurement rules should be applied to each. The framework states that revenue and gains are no different in nature (IASB, 2005, para. 75), which suggests there is no logical reason to exclude some accounting flows from the income statement. The emergence of this practice reflects more the political nature of the standard setting process than it does sound conceptual reasoning. Influence of interest groups on standard setting has resulted in some items being treated differently and allowed to bypass income (Zeff, 2005). Some preparers have sought to exclude certain items from income, citing arguments that they would introduce greater volatility in income, making future income more difficult to predict and resulting in incorrect firm valuation leading to increased cost of capital. This argument is based on the assumption that investors pay more attention to the reported aggregate income figure and do not consider the implications of the components of that item. Preparers who argue this way are assuming investors do not fully decompose the comprehensive income figure (based on clean surplus income) into its component parts, separating recurring and non-recurring items and possibly realized and unrealized items. Based on a decision usefulness perspective, there have been calls for greater transparency in display of information to assist the decision making process. Examples of financial statement formats which aim to increase the transparency and thus usefulness of financial information include the matrix format (Barker, 2002; Damant, 2003) and the CFA Institute's Business Reporting Model (CFA, 2005).

Accounting Diversity

Differences in national standards have influenced which items are treated as DSF. In the period of the study (1994–2001), different national accounting requirements were in force in the U.S., the U.K., France and Germany. IOY address the question whether the relationship between DSF and valuation error is different in these four countries. A reader may well ask: Should we expect differences between countries in the way omitted DSF affect valuation? Prior work by the authors found that, in the U.K., the U.S., France and Germany, DSF are not centred on zero and exhibit significant cross-country variation (Isidro *et al.*, 2004). In the current study, the authors show that the components of DSF differ between countries and across time. We might therefore expect that countries where accounting standards permit a larger number of DSF items or the items are more material (in terms of proportion of net income or equity) will have greater valuation error because these items have been excluded from calculation of future income in the valuation models. This view is consistent with Chen *et al.* (2004), who demonstrated that deviations from clean surplus accounting had a negative effect on the performance of valuation models.[1]

Another reason for possible differences between countries is the extent to which market valuation relies upon accounting information. In a setting where investors make relatively greater use of accounting information (compared to non-accounting information), we would expect less valuation error when market valuation is compared to the model's intrinsic value estimate. Where investors make greater use of non-accounting information, there is potential for valuation error to be greater. This issue typifies one of challenges facing cross-country studies, where it is difficult for researchers to control for differences between countries which could drive the results. The authors are not exempt from this difficulty, and work from the assumption that the models are equally applicable in a cross-country setting.

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[1] Chen *et al.* (2004) examined the reliability of implied cost of capital estimates obtained from the RIVM and Ohlson and Juettner-Nauroth model in seven developed countries (Australia, Canada, France, Germany, Japan, the U.K. and the U.S.).

METHODOLOGY

The RIVM and AEGM models are the starting point of the paper. This is appropriate, as the later empirical investigation relies on an intrinsic measure of firm valuation to compare to market value. Before using one or both of the models, the authors have investigated the claim that AEGM might function better than RIVM in the presence of violations of the clean surplus accounting assumption. The authors explore analytically the relationship between valuation errors from the two models and DSF. They conclude that the valuation error from the omission of expected future DSF should be identical across both models, provided continuing value growth assumptions are applied consistently across both. This exercise is a necessary step if one wants to avoid a choice of model. In addition, it extends our understanding of the nature and operation of the models.

Data relating to DSF, earnings, dividends and book values are collected from Compustat (for the U.S.) and Extel (for the U.K.) databases to provide inputs to the valuation models. Further data for all four countries was collected from annual reports. The authors analyse a large sample (U.S. 23,548 and U.K. 3,780 firm-years) and a four-country small sample (U.S. 235, U.K. 171, France 167 and Germany 141 firm-years). The authors make use of suitable univariate and multivariate statistical tests, considering both signed and absolute values for DSF and valuation errors. Appropriate sensitivity checks and robustness tests are employed.

RESULTS

The authors report weak evidence of the predicted relationship between valuation errors and DSF in the U.S. and little evidence of the relationship in the other countries. While there are good reasons to expect cross-country differences in the predicted relationship, few are observed. When differences are found, they generally involve the U.S. If the theoretical development presented in the paper leads readers to expect the predicted relationship between DSF and valuation errors will be observed in practice, they may be disappointed by weak or insignificant results. Let us therefore consider possible explanations for the results.

Problems with the Sample

One possible explanation for the lack of significant results is that, although the relationship between valuation errors and DSF exists, it cannot be observed within this sample. However, there are several reasons why IOY's selection of firms from the four-country sample is an appropriate setting to test the research question. First, the countries included have many firms which make extensive use of external finance. The countries have active capital markets which provide both equity and debt finance, suggesting that firm valuation is an ongoing and important activity. As we know that accounting information is used in valuation, it cannot be argued that the models are not relevant for estimating firm value in the four countries. Second, there are some traditional institutional differences between the countries, which are well documented by international accounting scholars (see, e.g., Nobes and Parker, 2006). The effect of these differences on qualitative characteristics and uses of earnings has been demonstrated by Ball *et al.* (2000). These differences provide further reasons to expect differences in results between countries. Third, IOY show that the items included in DSF vary between countries. The sample firms include sufficient variation so that the predicted relationship can potentially be observed. Thus, the sample is appropriate for researchers investigating whether the relationship between valuation error and DSF varies between countries.

Problems with the Data Accuracy

It could be argued that the results are affected by measurement error. That is, a relationship is not observed because of inaccurate recording of DSF. The authors have sought to address possible measurement error by conducting tests of the validity of data collected from a database and by hand collecting data. In relation to the large sample of U.K. and U.S. firms, data were obtained from Extel and Compustat and its validity assessed by comparison to a hand-collected data set. Based on their comparisons, IOY concluded the large dataset was sufficiently robust for U.K. and U.S. firms. In relation to France and Germany, data from databases were not considered to be suffificiently accurate, so these countries were not included in the large sample. This approach addresses concerns about reliability of databases discussed by García Lara, García Osma and Gill de Albornoz Noguer in this journal. It provides some assurance that the results are not due to measurement error.

Problems With the Method

Under this scenario, the predicted relationship exists, but cannot be observed with the methodology adopted by the authors. This possibility can be considered by investigating the robustness of the models underpinning the study. The RIVM and AEGM are widely used in academic research and are also relevant to practitioners (Lee, 1999). Increased use of valuation models follows from work by Ohlson (1995) and Feltham and Ohlson (1995), which provided a framework for addressing the question of the relationship of firm value and accounting numbers (Bernard, 1995). Richardson and Tinaikar (2004) reported that although empirical evidence from use of the Ohlson and Feltham and Ohlson models is mixed, other approaches have not yielded better intrinsic value measures. Richardson and Tinaikar's conclusions provide support for the application of the models in the manner undertaken in this study.

Further Analysis by Country and Item Over Time

The strongest factor influencing the results presented by IOY may not be any of the above but rather the process of data aggregation, namely the pooling of data for firms from four countries across six years. Accounting diversity among the sample firms may provide an explanation why, overall, the findings do not support the authors' predictions. We can see that DSF items vary between countries. For example, DSF which occur in the U.K., France and Germany relate to goodwill write-offs, currency translation differences and prior year adjustments. In contrast, DSF occurring in the U.S. but not in the other three countries include unrealized gains and losses on marketable securities and derivatives,[2] and pension liability adjustments. In pooling the data, the authors are asking whether valuation error is related to total mean DSF across the four countries. It may be the case that a relationship exists between DSF and valuation error, but it is not visible in a composite measure of DSF items which includes different items in different countries.

To address this question, the authors provide a thorough analysis of the relationship between DSF and valuation error by country and by DSF item over time. This analysis allows us to better explore the questions posed than does the pooled analysis. The individual country and item analyses allow some interesting observations to be drawn.

Firstly, consider the three countries where results do not support predictions, namely the U.K., France and Germany. In the U.K., a relationship is observed, but it is in the opposite direction to that predicted: A positive and significant coefficient for signed valuation error in the U.K. large sample is observed (Table 4, Panels A and C). The analysis by item shows significant positive coefficients for goodwill write-offs and asset revaluations. In relation to the former, the authors put forward the credible conjecture that goodwill write-offs imply value-relevant growth opportunities. A similar result occurs in France and Germany, with a positive and significant coefficient on the goodwill write-off items (Table 6, Panel A).[3] While the results do not support the authors' prediction of the direction of the relationship of signed valuation error and DSF (that is, it does not relate to valuation error in the manner hypothesized), it does nevertheless indicate that the item is relevant to investors' valuation.

Generally, other individual DSF items do not have a relationship with valuation error in the U.K., France and Germany. Possible explanations are that the items are smaller in magnitude than the goodwill write-offs or that they are viewed as being of a non-recurring nature, and therefore not affecting future cash flows and hence valuation. Examples of DSF items in this category include prior period adjustments arising from accounting changes which may impact the financial statement only once. The authors allude to this type of explanation for non-significant results when they suggest that it may be that past DSF are not accurate predictors of future DSF, one of the assumptions used in their modelling. However, this explanation may not hold for all countries/items since the significant positive coefficient for prior period adjustments in Germany (Table 6, Panel A) suggests this item is relevant to investors.

The authors find some evidence of the predicted relationship in the U.S. They find a significant negative coefficient for signed values of DSF in the large sample, relating to marketable securities and pension items. Tests of the relationship based on absolute values of these items are also consistent with predictions (Table 5,

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[2] The DSF item related to derivatives occurs in 2000–01.

[3] The results for France and Germany are not as strong as those for the U.K. In the U.K., absolute values of goodwill write-offs are also significant (and negative, consistent with the hypothesized relationship) while in France and Germany they are not (Table 6, Panel B).

Panels A and B). In the four-country small sample, the variable Other (which contains marketable securities, pensions and derivatives) is significant, in the predicted direction for absolute value and in the opposite direction for signed value (Table 6, Panels A and B).

This raises the question, why is the predicted relationship observed in some years in the U.S. but not in the other countries? One possible explanation is that U.S. DSF items are different from those in the other three countries. Importantly, U.S. DSF items relate to marketable securities, pensions and (in the last two years' data) derivative financial instruments. Further differences between U.S. DSF items and those in the other countries relate to whether the item is transitory or permanent.[4] In the U.S., the DSF items for marketable securities and pensions are transitory. That is, they appear initially in comprehensive income and equity; then at a later time when they are realized, they are removed from equity and put through the income statement and returned to equity. In contrast, U.K. DSF items such as asset revaluations and goodwill write-offs are not transitory. They remain in equity and are not recycled through income. It could be argued that the transitory nature of U.S. items provides less reason for the items to be value relevant. However, the evidence suggests value relevance and does not support this view.

Thus the authors provide evidence that key DSF items (marketable securities, pensions and derivatives) are associated with valuation error. The authors are rightly cautious about interpreting their evidence because the relationship is not observed in all years. However, the relationship is observed in the last three years, 1999–2001. These years are subsequent to the introduction of SFAS 130, *Reporting Comprehensive Income*, which required separate disclosure of comprehensive income items.[5] There may be a relationship between mandatory disclosure of comprehensive income items under the new standard and investors' use of the comprehensive income information. This conjecture is consistent with Kanagaretnam *et al.* (2005), who find a relationship between DSF and returns.

In conclusion, it can be argued that the study provides useful evidence of the relevance to investors of certain items included in DSF. While the evidence is not striking in the pooled data analysis, it is present when the analysis is done by country and by item over time. Items of relevance to investors included goodwill written-off, marketable securities, pension costs and derivatives. It seems logical that the last three items are likely to be of interest, because of the potential for them to recur and for them to have a major impact on the risk profile of a firm. By showing a relationship with valuation error, the study provides evidence that these items are relevant to investors.

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[4] I am indebted to the authors for raising this point.

[5] In the Statement of Changes in Equity, as part of Income Statement or in a separate Statement of Comprehensive Income.

CONTRIBUTION

The aim of Isidro, O'Hanlon and Young is to explore empirically whether expectations about DSF, as proxied by realizations of such flows, are negatively associated with valuation errors for the authors' forecast-based implementation of RIVM and AEGM. A related test is of the weaker prediction that the magnitude of valuation error is positively associated with the magnitude of expected future dirty surplus flows.

Considering the first aim, there is a clear motivation for this line of enquiry. Evidence that DSF is related to valuation error may suggest that DSF information is used by investors, that is, it is value relevant. IOY show a relationship between DSF and valuation errors when particular countries and specific DSF items are considered. The findings add to studies which have considered the value relevance of comprehensive income items. Works cited by the authors investigate the relationship between comprehensive income items and share price. IOY contribute to the value relevance literature from a different perspective by using errors in valuation models as the basis of their analysis. Their findings will be of interest to standard setters and regulators as they consider how best to present DSF information in the financial statements. The evidence also speaks to the broader question of whether it is appropriate to treat items as DSF when they are value relevant to investors' prediction of future income.

A second aspect of IOY's contribution is to consider whether the relationship of valuation error to DSF varied between four economically important countries, namely the U.S., U.K., France and Germany. For many years, cross-country studies of accounting practice have extended our understanding of differences in national accounting requirements and sought to explain them. Cross-country studies have become more important with the international convergence of accounting standards. IOY make a timely contribution to international accounting studies by demonstrating country differences in relevance of DSF items which will be of interest to those involved in international standard setting projects.

There will be scope for future work to explore the relationship between DSF and firm valuation following the adoption of IFRS by firms from the U.K., France and Germany. Under IFRS, DSF items relating to marketable (available-for-sale) securities, derivatives and pensions will be included in the financial statements. The potential impact of these items on firm performance means that the items may be relevant to investors' valuation. Therefore it may be that the results for the U.S., which emerge in the later years of the current study, will be replicated in the future in the U.K., France and Germany.

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CHRISTOS A. GRAMBOVAS, BEGOÑA GINER AND
DEMETRIS CHRISTODOULOU

Earnings Conservatism: Panel Data Evidence from the European Union and the United States

This paper focuses on earnings conservatism, and provides new evidence based on procedures that account for variability at the firm level, drawing a comparison between the European Union and the United States. A key finding is that the estimated responsiveness of earnings to bad news is substantially higher when unobserved firm-specific effects are modelled. Furthermore, it is shown that accounting has become more conservative not only in the U.S. but also in the EU when taken as a whole, and there is little evidence of marked differences in the asymmetric timeliness of earnings between the two. Indeed, any changes in this property of earnings are likely to be attributable to a common factor that influences firms similarly in both locations, and not necessarily to the process of economic convergence that has taken place in the EU.

Key Words: Accounting; Conservatism; Earnings properties; Panel data.

This paper focuses on earnings conservatism, measured in terms of the asymmetric responsiveness of net income to the sign of market returns, and provides new evidence based on procedures that account for variability at the firm level. A comparison is drawn between two major economic blocs, the European Union and the United States. A key finding is that the estimated responsiveness of earnings to bad news (negative returns) is substantially higher when unobserved firm-specific effects are modelled. Furthermore, it is shown that accounting has become more conservative not only in the U.S. as reported elsewhere (Givoly and Hayn, 2000) but also in the EU when taken as a whole, and there is little evidence of marked differences in the asymmetric timeliness of earnings between the two. Indeed, any changes in this property of earnings are likely to be attributable to a

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common factor that influences firms similarly in both locations, and not necessarily to the process of economic convergence that has taken place in the EU.

The notion of earnings conservatism has received considerable attention recently in the empirical research literature, even though conservatism as a general term has a long tradition in accounting. Earnings conservatism can be seen as a behavioural rule for accountants, although it is far from being a precise rule. In the past, the notion of conservatism implied the lower of cost or market, as well as recording future losses but not future profits. As Solomons (1986, p. 100) points out, 'too often in the past conservatism has been an excuse for attempts to present too consistently gloomy a picture of an enterprise's financial position and earnings by, for example, undervaluing inventory or over providing for deferred maintenance'. In general, conservatism now implies cautiousness in dealing with uncertainty. In the IASB's (2002, p. F.16, para. 37) conceptual framework, the notion of conservatism is defined as 'the inclusion of a degree of caution in the exercise of the judgments needed in making the estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities and expenses are not understated. However, the exercise of prudence does not allow, for example, the creation of hidden reserves or excessive provisions.' Therefore, the notion of conservatism can be seen as a corrective to the over-optimistic behaviour of managers that has to be applied when exercising judgments.

In recent years, market-based accounting research on conservatism has focused on the timeliness with which accounting earnings reflect economic income, following the approach proposed by Basu (1997). The use of changes in prices as the benchmark against which to appreciate the degree of conservatism of accounting earnings has an intuitive appeal as long as the market captures more information than the accounting system. Since the seminal work by Ball and Brown (1968), it has been shown that prices lead earnings, or earnings lag prices, but Basu provided evidence on an asymmetry in annual accounting earnings, in that firms incorporate bad news (a fall in equity prices over the year) faster than good news (an increase in equity prices) in their earnings.

Basu's (1997) work has been extended both in theoretical and empirical terms. Empirically, the notion of earnings conservatism has been examined for companies operating in different parts of the world, while, theoretically, other studies have attempted to build a conceptual framework to describe the factors that influence asymmetry in timeliness. In summarizing the main factors that provide incentives to the managers of firms and their accountants to report bad news on a more timely basis than good news, Watts (2003) offers four explanations: contracting, litigation, taxation and regulation. To these four causes of earnings conservatism we would add another: the economic driver. Bushman and Piotroski (2006) use the term 'political economy' to imply government intervention in markets. In more advanced capital markets, however, such intervention is minimal, and we suggest that this additional cause of the asymmetric timeliness of earnings is attributable more generally to political and macroeconomic developments that might affect the microeconomics of the firm.

Often, it is assumed that the conditions underlying such determinants of corporate behaviour are dissimilar across countries, the nation state therefore providing the main level of analysis, with observations on each firm treated as the basic units of analysis within country sub-samples. Consequently, international research in accounting is usually structured so that certain factors influencing firms are held constant within countries but are allowed to differ between countries. The European Union presents a dilemma in this respect. The longstanding member states of the EU have engaged in a process of political, economic, financial and regulatory integration over several decades. Yet in many areas of empirical research that take an international perspective, there appears to be a preference still to focus on the individual member states, or to regroup them on the basis of the historical origins of the laws and regulations in force. In our view, the only economically sensible approach would be to assess the proximity of the drivers of earnings conservatism, and in this respect we consider the EU as cohesive. For reference, however, we also report on the estimation of earnings conservatism separately by member state. At the same time, we test for earnings conservatism in the U.S. market in order to compare the two major economic zones, the EU and the U.S., which are more comparable in political and macroeconomic terms.

A further contribution of this paper is the employment of a panel data methodology in an effort to provide more reliable estimates by focusing on firm-specific heterogeneous variability within the framework outlined above. The pooled ordinary least squares estimator ignores the panel structure of the data and treats observations as being serially uncorrelated for a given firm, with homoskedastic errors across firms and time periods. Here, we show why this is an entirely untenable assumption for a dataset that comprises firm-year observations.

EARNINGS CONSERVATISM

Using a reverse regression, Basu (1997) provides the seminal assessment of earnings conservatism, providing evidence in the U.S. to support his prediction that bad news is reported on a more timely basis than good news. Pope and Walker (1999) point to differences in asymmetric timeliness between firms based in the U.K. and the U.S., but then show that these are attributable to the components of earnings that are examined.[1] In contrast, Ball *et al.* (2000) argue that earnings conservatism is likely to differ more fundamentally between certain jurisdictions, and will depend more on the political influence on accounting practices that varies in line with the type of legal system within which the firm operates. In their view, a stakeholder governance model that solves information asymmetries using insider information will weaken the demand for timely and conservative accounting earnings. These authors compare the *R*-squareds of country-specific tests of the Basu model, and conclude that tests of code law countries (with stakeholder governance) provide a lower *R*-squared than those of common law countries (with shareholder governance).[2]

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[1] Pope and Walker (1999) present evidence that U.K. firms differ from their U.S. counterparts because, in the time period examined, they use 'extraordinary items' to smooth ordinary earnings.

[2] The results reported by Ball *et al.* (2000) do not completely support their initial hypothesis as, for example, the *R*-squared of the test for France (one of the three countries branded as code law) is higher than for Australia (common law) and similar to the U.K. (common law).

While the theoretical discussion appears to be valid in terms of relating the determinants of earnings conservatism with regulation, shareholder litigation and private debt, the categorization of accounting environments based on legal origins that date back to the Roman Empire or preferences for debt financing that date back to the nineteenth century seems at the least problematic.[3] For a larger set of countries, Bushman and Piotroski (2006) re-examine the influence of legal and political institutions on the timeliness of the reporting of earnings. These authors suggest that earnings conservatism is indeed higher in countries with greater judicial quality, while strong public enforcement of securities law further delays the recognition of good news. However, they once again assign countries to different legal origin subgroups and reach their conclusions based on these generalizations.

Giner and Rees (2001) ask to what extent the conclusions reached in such studies apply to three EU member states that are representative of different accounting traditions: France, Germany, and the U.K. In order to capture prior news, they incorporate in their analysis previous earnings as well as prior period news. Overall, they find that, in the three countries involved, the contemporaneous association between earnings and returns is much stronger for bad news than for good news but that the inter-country differences are not statistically significant.[4] The effect of different domicile on the level of earnings conservatism is further examined by Raonic *et al.* (2004), who show that firm-level characteristics are more important drivers, and particularly that European companies that are interlisted tend to report losses on a much timelier basis regardless of their location. On similar grounds, Huijgen and Lubberink (2005), using a matched-pairs research design, suggest that U.K. firms cross-listed in the U.S. report their earnings in a much more conservative way than U.K. firms listed only in the U.K.

While the general conclusion of this research is simply that earnings are timelier in reflecting decreases rather than increases in prices, the results are not consistent with differences in behaviour from one location to another. Instead, there is evidence that conservatism related to news is more likely to vary at the firm level. Indeed, it should be recognized that the higher is balance sheet conservatism as proxied by the market-to-book ratio, the lower the degree of earnings conservatism as measured by asymmetry (García Lara and Mora, 2004). These two types of conservatism are referred to respectively as 'unconditional' and 'conditional' by Beaver and Ryan (2005), who provide a comprehensive model of the firm's accounting that captures the interaction between them.

Turning to the factors that seem to drive conservative accounting, as summarized by Watts (2003), it is difficult to derive clear-cut predictions of their influence at the firm level that will be systematic across the EU and the U.S., the two economic blocs that are juxtaposed here. On the one hand, consider the contracting explanation of conservative accounting, where published earnings are seen to signal the management's performance and thus affect their welfare either directly (salaries, bonuses) or indirectly (permanency), or both. It is notable that the average annual remuneration and bonuses of chief executive officers appear to be roughly the same across EU member states, but lower than in the U.S.[5] Thus one would expect a similar effect on the level of earnings conservatism throughout the EU, but less than in the U.S. On the other hand, consider the argument that managers might seek to calculate earnings in a manner that reduces the present value of taxes, leading to greater conservatism in financial reporting. In the EU, the interconnections between accounting and taxation, although now converging through recent efforts towards tax harmonization, started from a position of complete alignment between reported and taxable profits in many jurisdictions, unlike the U.S. Moreover, the tax burden in the EU appears to be higher than in the U.S., and, as Bushman and Piotroski (2006) suggest, steeper taxation gives rise to political costs that can influence observed reporting practices. Consequently, given these circumstances, one could expect higher conservatism in the EU than in the U.S. in this case, rather than the lower conservatism first presented. Similarly inconclusive arguments may be advanced in the case of the litigation and regulation explanations of conservatism.

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[3] McLeay (2005, p. 730) refers to such claims as a factoid that 'has the appearance of being reliable and accurate [just] because it has been repeated so often that people assume it is true'. Whitehead (1925) described this as the fallacy of 'misplaced concreteness'.

[4] Garcia Lara *et al.* (2005) reconsider earnings conservatism in the same three countries and relate it to earnings management practices, suggesting that French and German firms are more likely to incorporate bad news through discretionary accruals, whereas U.K. firms do not.

However, we would also argue that an additional cause of the asymmetric timeliness of earnings comes from the impact of political and macroeconomic developments on microeconomic aspects of the firm. One of the most direct effects would be through the influence of interest rates on the firm's cost of capital. Changes in the cost of debt will affect the firm's choice between equity and debt financing, making borrowing more or less expensive. More expensive borrowing might turn the firm's management to further equity financing which in turn will augment the necessity for timelier recognition of news, and in particular for bad news to be reflected in earnings on an even timelier basis in jurisdictions with stronger shareholder protection (e.g., Ball *et al.*, 2000).

After the Maastricht Treaty in 1992, a convergence process was initiated in the EU with all member states aiming to fulfil the agreed macroeconomic criteria.[6] Figure 1, which shows the evolution of short-term interest rates, provides an illustration in Panel A of the degree of convergence that occurred in the EU prior to the locking of the euro in 1999. Such convergence would have direct effects on the cost of capital, leading to greater similarity in financial reporting behaviour in

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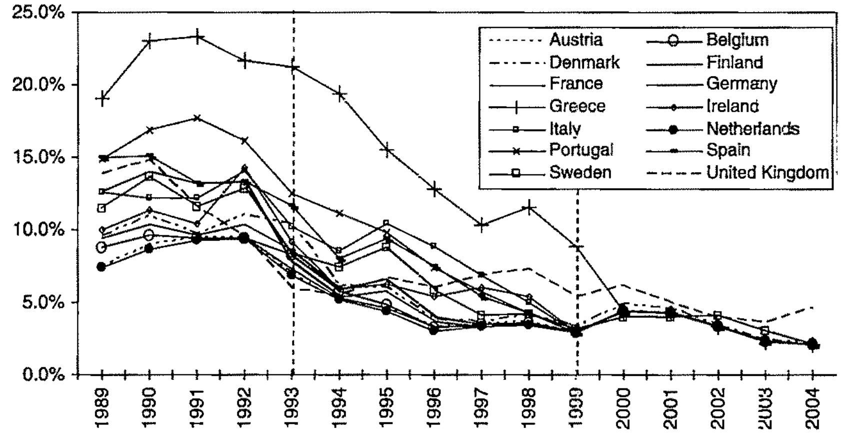
[5] According to a Towers Perrin Report (2002), for the period 2001–02 the average annual remuneration appears to be very similar in the U.K. (668,526 U.S. dollars [USD]), Belgium (696,697 USD) and Italy (600,319 USD) and slightly lower in the rest of the EU (being in France at 519,060 USD and in Germany at 454,974 USD), while in the U.S. the relevant remuneration is triple (1,932,580 USD). In the same report, bonuses appear to be a considerably smaller part of the total CEO remuneration in EU than in U.S. companies.

[6] There are five main Maastricht convergence criteria: (a) inflation rates no more than 1.5 per cent above the three EU member states with the lowest inflation; (b) long-term interest rates no more than 2 per cent above the three EU member states with the lowest rates; (c) budget deficit under 3 per cent of the national GDP; (d) public debt ratio of less than 60 per cent of national GDP; and (e) at least two years of currency stability.

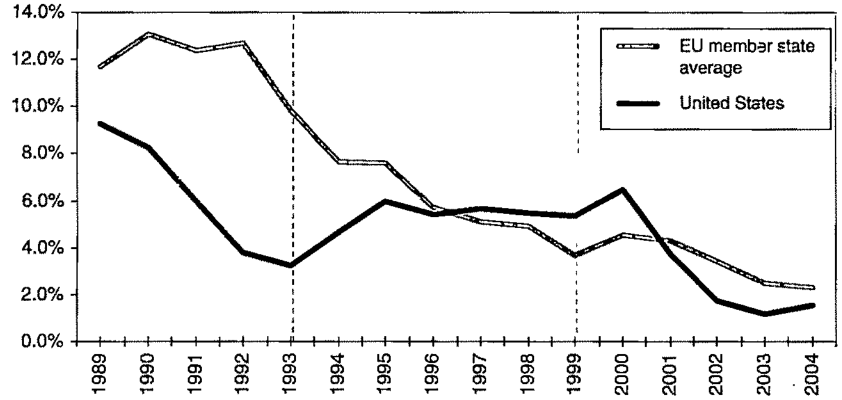
FIGURE 1

SHORT TERM INTEREST RATES

Panel A: EU member states



Panel B: Comparison with the U.S.



Note: Data were taken from OECD Country Statistics, www.oecd.com.

the EU. With regard to the comparison of the EU with the U.S., as shown in Panel B of Figure 1, it can be seen that the interest rate differential between the two remained substantial in the period prior to the Maastricht Treaty, with lower interest rates in the U.S. providing greater debt financing potential, which implies lower conservatism in the U.S. than the EU. However, that differential has almost disappeared since then, which would suggest that the effect on conservative reporting would no longer differ across the two economic blocs.

From the above, we can establish two main implications that should be analysed empirically in an effort to explain better the nature of conservative behaviour.

First, based on the drivers of earnings conservatism that have been identified, and due to the contradictory nature of the arguments concerning the timeliness of bad news, we would expect that the difference in earnings conservatism between U.S. firms and EU firms ought to decrease during the period examined. Second, due to the fall in interest rates and the associated increase in borrowing, we would predict a general decrease in conservatism during this time. Although we have argued that the economic integration achieved to date in the EU is consistent with the harmonization of drivers of earnings conservatism, we also recognize that other firm-specific factors should be taken into account when identifying the model to be used in the empirical analysis. This point is taken up again in the discussion of model construction that follows.

RESEARCH DESIGN

To model earnings conservatism, Basu (1997) introduced the following linear predictor with intercepts α_0 and α_1 and slopes β_0 and β_1:

$$E_{it} = \alpha_0 + \alpha_1 D_{it} + \beta_0 R_{it} + \beta_1 D_{it} R_{it} + u_{it}, \tag{1}$$

where E_{it} is earnings per share after extraordinary items scaled by the share price at the beginning of the period, R_{it} the discretely compounded annual return, D_{it} a dummy variable that takes the value of 1 if $R_{it} < 0$ (bad news) and the value of zero otherwise (good news), and $u_{it} \overset{iid}{\sim} N(0,\sigma^2)$ the residual term.

In contrast to previous research that has empirically assessed the extent of conservatism, this study uses panel data methods as they are more appropriate for the cross-sectional time series structure of the data. The pooled OLS estimator in equation (1) treats observations as being serially uncorrelated for a given firm, with homoskedastic errors across firms and time periods. Instead, the firm-specific panel specification of equation (1) for the cross-sectional unit $i = 1,2,\ldots,n$ and firm-specific time operator $t_i = 1,2,\ldots,T_i$ is:

$$E_{it} = \alpha_0 + \alpha_1 D_{it} + \beta_0 R_{it} + \beta_1 D_{it} R_{it} + C_i + v_{it}, \tag{2}$$

where C_i represents the firm-specific effects for firm i over T_i, and $v_{it} \overset{iid}{\sim} N(0,\sigma^2)$ the remaining normal disturbance component.[7] That is, equation (2) implies the existence of firm-specific effects in the unexplained error term u_{it} in equation (1), so that $u_{it} = C_i + v_{it}$.[8]

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[7] T_i corrects the finite-sample bias that is introduced when unbalanced and unequally spaced panels are scaled by T. Thus, T_i is the length of the firm-specific time series and nT_i is the total number of observations for the entire dataset given its unbalanced panel structure.

[8] For a more detailed analysis of panel modelling, see Nerlove (2002), Arellano (2003), Hsiao (2003) and Baltagi (2005). Conventionally, the panel-specific effects denoted C_i include factors that are both unobserved and unobservable, which in the context of the present study would be firm-specific. Unobserved firm-specific factors include characteristics of a company that could be allowed for in the model as explanatory variables, such as the quality of management, but which are not added as they would introduce additional complexity to the modelling. Unobservable firm-specific factors represent those that are impossible or extremely difficult to measure, e.g., invisible assets such as technical know-how and brand awareness (Itami and Roehl, 1987).

If equation (2) is a meaningful and well-specified model, then it holds that:

$$\bar{E}_i = \alpha_0 + \alpha_1\bar{D}_i + \beta_0\bar{R}_i + \beta_1\overline{D_iR_i} + C_i + \bar{v}_i, \tag{3}$$

where $\bar{E}_i$, $\bar{D}_i$, $\overline{D_iR_i}$, $\bar{R}_i$ and $\bar{v}_i$ indicate the respective mean values for each firm panel scaled by T_i. Equation (3) is the between-effects (BE) estimator that describes the mean variation between firms by assuming time-invariant effects.[9] To estimate equation (3), we use an analytically weighted least squares (A-WLS) estimator to account for the unequally spaced and generally unbalanced panel-specific T_i. Analytical weights $\sqrt{T_i}$ are required in least squares regressions that use averages instead of individual observations (Johnston and DiNardo, 1997), and as a result, A-WLS provides consistent results with a more stable estimation for the variance of $\sigma_C^2/T_i + \sigma_v^2$. The subtraction of (3) from (2) gives:

$$(E_{it} - \bar{E}_i) = \alpha_1(D_{it} - \bar{D}_i) + \beta_0(R_{it} - \bar{R}_i) + \beta_1(D_{it}R_{it} - \overline{D_iR_i}) + (v_{it} - \bar{v}_i). \tag{4}$$

This is the basis for an estimator that models variation within panels by assuming firm-invariant effects. Notice that the panel-specific disturbances C_i are eliminated, as is the constant term α_0, and therefore steps must be taken to allow for an intercept. Given that, following equation (2), it also holds that:

$$\bar{\bar{E}} = \alpha_0 + \alpha_1\bar{\bar{D}} + \beta_0\bar{\bar{R}} + \beta_1\overline{\overline{DR}} + \bar{C} + \bar{\bar{v}}, \tag{5}$$

where $\bar{\bar{E}}$, $\bar{\bar{D}}$, $\overline{\overline{DR}}$, $\bar{\bar{R}}$ and $\bar{\bar{v}}$, are the global means for the entire sample scaled by nT_i and $\bar{C}$ the mean of firm-specific effects scaled by n, then by adding equations (4) and (5) we derive the following 'within effects' (WE) estimator:

$$\begin{aligned}(E_{it} - \bar{E}_i + \bar{\bar{E}}) = {} & \alpha_0 + \alpha_1(D_{it} - \bar{D}_i + \bar{\bar{D}}) + \beta_0(R_{it} - \bar{R}_i + \bar{\bar{R}}) \\ & + \beta_1(D_{it}R_{it} - \overline{D_iR_i} + \overline{\overline{DR}}) + (v_{it} - \bar{v}_i + \bar{\bar{v}}) + \bar{C}.\end{aligned} \tag{6}$$

To estimate equation (6), we require the restriction that $\bar{C} = 0$ and the estimated $\hat{\alpha}_0$ will reflect the average value of the within-firm effects. Therefore, the only difference between equation (6) and equation (4) is the inclusion of the intercept coefficient since the addition of global means will not alter the value of the slope, as they are constant values.

Lastly, an alternative estimator is the random effects (RE) estimator. The estimator considered here was introduced by Swamy and Arora (1972) and further developed by Baltagi and Chang (1994) for use with unbalanced panels. It is a matrix-weighted average of the between-firm and within-firm estimators, so that earnings E_{it} and its covariates $\mathbf{X}_{it}$ are transformed into:

$$E'_{it} = E_{it} - \hat{\theta}_i\bar{E}_i + \bar{\bar{E}} \quad \text{and} \quad \mathbf{X}'_{it} = \mathbf{X}_{it} - \hat{\theta}_i\bar{\mathbf{X}}_i + \bar{\bar{\mathbf{X}}}, \quad \text{with} \quad \hat{\theta}_i = 1 - \sqrt{\frac{\hat{\sigma}_v^2}{T_i\hat{\sigma}_c^2 + \hat{\sigma}_v^2}}, \tag{7}$$

where $\hat{\sigma}_v^2$ and $\hat{\sigma}_C^2$ are variances of the idiosyncratic normal error term and the panel-specific error term, respectively. This means that, if $\hat{\sigma}_C^2 = 0$, then $\hat{\theta}_i = 0$, so that equation (2) can be successfully estimated by OLS. On the other hand, if $\hat{\sigma}_v^2 = 0$, then $\hat{\theta}_i = 1$, which attaches full weight to the within-firm effects estimator in equation (6). Compared to the other two estimators, RE does not require the assumption that the individual effects are uncorrelated with the explanatory variables, but it is important to note that the random effects estimator treats C_i as a random normal variable $N(0,\sigma^2)$.

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[9] For BE, we assume that there is no correlation between the covariates of the model $\bar{\mathbf{X}}_i:\{\bar{D}_i, \overline{D_iR_i}, \bar{R}_i\}$ and the panel-specific error term, $E(\bar{\mathbf{X}}_i, C_i) = 0$. In addition, in order to differentiate between the constant term $\hat{\alpha}_0$ and the firm-specific effects C_i, the constraint $\Sigma C_i = 0$ is imposed over all i's.

For the empirical part, we will estimate equations (3), (6) and (7), and compare to the pooled OLS estimator in equation (1).

SAMPLE

The study compares the EU and the U.S. for the period from 1989 to 2004.[10] Within this period, we allow for structural breaks in 1993, when the Maastricht Treaty was implemented in all EU countries, and again in 1999, the year when the Eurozone currencies were locked into the euro. These events account for the two most significant economic and financial regulatory developments within the overall time period. Hence, for the purposes of analysis, the sample frame is divided into three time periods: 1989–92, 1993–98, and 1999–2004.

The analysis is based on the closing stock prices and reported net income after extraordinary items recorded in the Worldscope database.[11] All financial firms, utilities and public organizations have been excluded in arriving at the sample due to the different nature of their products and the highly regulated market environments in which they operate, leaving 1,217 U.S. firms and 6,070 EU firms in the original sample.[12]

In related research studies, it has been usual to attempt to obtain estimates by eliminating the upper and lower 1 per cent of the frequency distributions of both earnings and annual returns. However, in our view this arbitrary univariate approach to extreme values is not justifiable as the observations that are removed are not necessarily extreme and, secondly, the remaining data may suffer from masking and swamping problems. That is to say, one extremely leveraged observation may mask the appearance of another, or a small cluster of outliers may attract the mean and inflate the variance in such a manner that some other observations will

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[10] The EU saw the accession of a number of countries in 2004. This paper focuses on the fifteen pre-enlargement member states, excepting Luxembourg for which there is insufficient data. Thus it includes observations from Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden and the U.K.

[11] Basu (1997) and Pope and Walker (1999) use earnings both before and after extraordinary items in their assessments of the degree of earnings conservatism, and report that their results are sensitive to the definition of earnings. Others, however, conclude that their results are robust to both definitions (Garcia Lara *et al.*, 2005). For this paper, following Giner and Rees (2001), we choose to employ the 'all-inclusive' figure of earnings after extraordinary items.

[12] Our sample is drawn from the same source as Leuz *et al.* (2003), who also use the Worldscope database. Their study covers the period 1990–99, with a sample of 29,903 firm-years for the EU and 3,792 firm-years for the U.S. For the present study covering the period 1989–2004, the initial sample comprises 47,570 firm-years for the EU and 14,260 firm-years for the U.S. In the latter case, these are firms that are listed on the U.S. exchanges with the largest market capitalization for the period under consideration (NYSE, NASDAQ, AMEX and CHICAGO).

TABLE 1

PANEL STRUCTURE

	Original sample		1989–92		1993–98		1999–2004	
	n	Firms	n_H	Firms_H	n_H	Firms_H	n_H	Firms_H
U.S.	14,260	1,217	2,286	616	5,051	1,004	6,479	1,149
EU	47,570	6,070	9,176	2,587	16,793	3,957	20,579	4,659
Austria	864	114	154	45	316	78	367	81
Belgium	1,157	136	207	57	373	81	495	101
Denmark	1,628	170	325	92	576	129	622	126
Finland	1,258	150	169	53	375	87	591	118
France	7,537	1,028	1,409	409	2,411	601	3,393	758
Germany	6,399	808	979	280	2,034	425	3,117	702
Greece	1,585	272	63	22	483	133	896	244
Ireland	743	88	144	43	226	48	271	61
Italy	1,935	248	452	117	578	141	806	176
Netherlands	2,138	238	446	130	768	157	844	184
Portugal	695	90	101	29	243	61	265	63
Spain	1,380	153	242	71	476	103	506	106
Sweden	2,389	371	247	79	701	184	1,339	296
U.K.	17,862	2,204	4,081	1,109	6,434	1,473	6,827	1,584
Total sample	61,830	7,286	11,474	3,205	20,945	4,681	27,161	5,825

Note: n indicates the total number of cross-sectional time series (firm-year) observations before removing extreme values and Firms the number of firm-panels within the sample. n_H and Firms_H indicate the firm-year observations and the number of firms, respectively, after applying the Hadi (1992, 1994) method for detecting multiple outliers at the 5% significance level in multivariate samples prior to each estimation.

appear as outliers, when in fact they are not. In addition, the univariate approach overlooks the association between variables and cannot guarantee robust multivariate estimates. Finally, and more important for this study, heuristic univariate outlier deletion is inconsistent with panel methods of analysis, as it would lead to discontinuity in firm panels, thus restricting lagged panel estimation. Therefore, outliers are eliminated on the basis of firm-mean behaviour in the multivariate sample. That is, if the mean annual return and mean net income for firm *i* and time *t* appear as a multivariate outlier, then the entire firm-panel is excluded. The filter is adapted from Hadi (1992, 1994) and is applied prior to each estimation at the 5 per cent significance level.[13] Table 1 gives the panel data structure before

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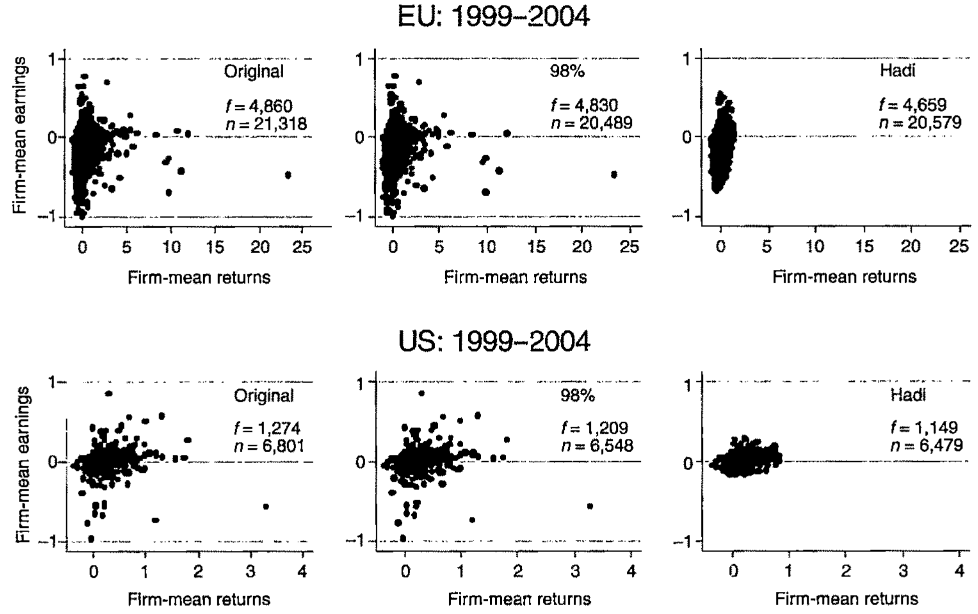
[13] For this paper we apply the algorithm proposed by Hadi (1994) which modifies the original version in Hadi (1992). The modification is also discussed in Hadi and Simonoff (1993), who consider methods for detecting multiple outliers in multivariate linear (regression) models. For a more detailed understanding for the problem of identifying outlying observations, see Barnett and Lewis (1994) and Hadi (2006).

FIGURE 2

ELIMINATION OF 1% UPPER AND LOWER UNIVARIATE VARIABILITY VS DELETION OF HADI'S BIVARIATE FIRM-MEAN OUTLIERS



Note: The scattergraphs indicate the bivariate relationship between firm-mean earnings and firm-mean returns. For comparison reasons, their plotted region is confined to –1 ≤ firm-mean earnings ≤ 1. The left-hand graphs plot the original samples. The central graphs show the remaining firms in the middle 98% of the distribution, i.e., following the elimination of the univariate lower and upper 1% of variation for firm-year earnings and firm-year returns. The right-hand graphs indicate the remaining firms following the outlier filter proposed by Hadi (1992, 1994) for detecting multivariate outliers as applied on the firm-means. *f* indicates the number of firms (panels) and *n* the number of firm-year observations.

and after the application of the multivariate outlier procedure. It can be seen from this table how the number of firms (and firm-year observations) varies considerably across member states within the EU, with the U.K. providing by far the largest sample. There are also differences in the number of cases in each sub-period, partially explained by their differing lengths; this is especially the case in the first sub-period, where both the number of firms and observations are considerably lower than in the other two sub-periods.

The appropriateness of the suggested procedure is illustrated in Figure 2, where the univariate approach to eliminating the extreme 1 per cent of firm-year observations is contrasted with Hadi's multivariate filter applied to firm-means. The univariate approach ignores the association between variables, whereas Hadi's filter correctly recognizes those firms that either report extreme earnings, or have extreme returns, or both. In Figure 2, average earnings and average returns for each firm are plotted before and after the two procedures, for the U.S. and EU samples in the third sub-period from 1999 to 2004. The robustness of Hadi's filter is visibly superior.[14]

MODEL SELECTION AND EMPIRICAL RESULTS

As indicated above, panel data methods may be used to model the firm-specific component of variability. With respect to the datasets analysed here, the justification for this approach is given in Table 2, in which we report the variation of earnings and annual returns in the pooled data, together with the cross-sectional contribution to variation. It can be seen from the standard deviation of the firm averages that there is substantial cross-sectional variation, and it is this unobserved component of the pooled error that is accounted for by adding the firm-specific effects C_i in equation (2) above. It may also be noted that earnings and returns, for both the EU sample and the U.S., exhibit much higher volatility in the second period (post-Maastricht and pre-euro) than in other periods. For instance, the standard deviation of pooled earnings in the U.S for the period 1993–98 is 3.46 and 2.85 times higher than in 1989–92 and 1999–2004 respectively, and 5.32 and 5.43 times higher at the firm level. This also substantiates the choice of three separate sub-periods for analysis.

TABLE 2

ANALYSIS OF VARIANCE

		Earnings_{it}		Returns_{it}	
		Pooled	Cross-sectional	Pooled	Cross-sectional
U.S.	1989–92	0.1057	0.0770	0.5250	0.2752
	1993–98	0.3660	0.4098	0.8906	0.3926
	1999–2004	0.1284	0.0754	0.5876	0.2026
EU	1989–92	0.1776	0.1231	0.4331	0.2425
	1993–98	0.7640	0.5328	0.9160	0.7637
	1999–2004	0.2990	0.1805	0.8443	0.3969

Note: The table reports standard deviations, which are biased-corrected estimates for unbalanced panels. Estimation is based on samples free of outliers, after applying the method proposed by Hadi (1992, 1994). For each sample that is tabulated, the pooled estimate is the standard deviation of y_{it} from the global mean $\bar{y}$, where the estimate of cross-sectional variability is the standard deviation of panel means $\bar{y}_{it}$.

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[14] To demonstrate the effect of Hadi's filter, consider the scattergraphs in Figure 2 for the EU sample, which initially comprised 4,860 firms and 21,318 firm-year observations. Deleting the upper and lower 1 per cent from both earnings and returns removes 829 firm-years, with 30 firms being eliminated entirely from the sample while 645 others remain in the sample with shorter or discontinuous series. Hadi's bivariate filter applied to the firm-means eliminates 201 firms and only 739 firm-years.

TABLE 3

MODEL SELECTION

	Estimator	1989–92			1993–98			1999–2004		
		F/χ^2	R^2	BIC/$\hat{\theta}_i$	F/χ^2	R^2	BIC/$\hat{\theta}_i$	F/χ^2	R^2	BIC/$\hat{\theta}_i$
U.S.	OLS	59.7	7.28%	–3930.0	87.2	4.93%	3958.1	103.3	4.57%	–8474.9
	WE	24.0	4.13%	–5286.1	69.4	4.90%	52.3	31.2	1.73%	–11075.6
	BE	57.3	21.92%	–1613.3	36.0	9.71%	141.7	172.6	31.01%	–3072.1
	RE	*135.0*	7.16%	*0.33*	*238.1*	4.53%	*0.71*	*220.4*	4.52%	*0.23*
EU	OLS	383.2	11.14%	–6718.9	45.6	0.81%	38516.7	459.7	6.30%	7419.1
	WE	124.8	5.38%	–11312.0	20.6	0.48%	28070.1	106.5	1.97%	–254.8
	BE	344.8	28.59%	–4613.1	29.0	2.15%	6021.4	700.5	31.09%	–4728.4
	RE	*851.8*	11.11%	*0.20*	*102.1*	0.78%	*0.39*	*1325.0*	6.28%	*0.03*

Note: The table provides diagnostics that guide model selection, between the pooled ordinary least squares estimator OLS (equation 1), the weighted least squares between-effects estimator BE (equation 3), the least squares within-effects estimator WE (equation 6) and the generalized least squares random-effects estimator RE (equation 7). Estimation is based on samples free of outliers, after applying the method proposed by Hadi (1992, 1994). F-tests the joint significance of all covariates for OLS, WE and BE, and, since the finite properties of RE are not known, χ^2_k with k parameters tests the joint significance for RE. R^2 is the coefficient of determination for OLS, WE and BE, and the squared correlation between y_{it} and fitted values $\hat{y}_{it}$ for RE. BIC is Schwartz's Bayesian Information Criterion which is reported for OLS, WE and BE. In the case of RE, $\hat{\theta}_i$ is the median value of the weights placed on y_{it} during transformation; when $\hat{\theta}_i = 0$ then RE is equivalent to the pooled OLS estimator, and RE converges to the WE estimator as $\hat{\theta}_i \to 1$.

Selection Criteria and Tests for Panel Specification

To identify the most appropriate panel method, we compare the pooled OLS estimator of equation (1) to the BE estimator of equation (3), the WE estimator of equation (6) and the RE estimator of equation (7). The diagnostics are given in Table 3, which include an F-test of overall model significance, the R-squared coefficient of determination and the Schwartz Bayesian Information Criterion (BIC). Note that, in the case of RE, a chi-squared test of overall model significance is reported instead of the F-test, together with $\hat{\theta}_i$, the median of the weights that are placed on the variable transformation.

The reported F-test for the OLS, BE and WE models and the corresponding chi-squared test for RE find all estimators to be significant in all three periods for the EU and the U.S. A key finding in Table 3 is the high level of variability explained by the fitted BE model. The R-squareds from the BE estimator are considerably higher than from OLS, WE or RE estimations. This implies the existence of highly significant firm-specific effects.[15] On this basis, the OLS estimator is rejected since its assumption of homoskedastic residuals for the pooled sample of firm-years clearly does not hold.

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[15] The presence of firm-specific effects is verified through additional tests not reported here. The null hypothesis that all C_i are equal to zero is rejected by a further F-test for all samples. Then, the modified Wald test proposed by Baum (2000), which examines the null of a constant variance across panels ($\sigma_i = \sigma$ for all $i = 1,2,\ldots,n$), gives results that are overwhelmingly in favour of groupwise heteroskedasticity in the residuals.

To examine the appropriateness of a random effects estimator, $\hat{\theta}_i = 0$ would point to an inadequate specification, in the sense that RE would offer nothing more than the simple pooled OLS estimator. On the other hand, as $\hat{\theta}_i \to 1$, the RE estimator converges to the WE estimator. However, although the results reported here show that $\hat{\theta}_i$ is non-zero, the estimates of the transformation parameter are relatively low and additional tests allow us to reject a random effects specification.[16] Thus, the choice remains between BE and WE. The tests yield inconclusive evidence in this respect, as the BIC, although favouring WE, does not do so consistently. Moreover, the WE estimator yields mostly insignificant parameters, which do not assist the investigation of the null hypothesis of earnings conservatism.[17] This is not surprising, since the WE estimator attempts to fit the firm-specific one-way error-component model for three relatively short-term periods. Thus, the initial observation that the *R*-squareds from the BE estimator are considerably and consistently higher leads us finally to the conclusion that neither the RE nor the WE estimators can outperform the BE estimator. Thus, in the next section we proceed with our analysis by obtaining estimates solely from the BE estimation.

Testing for Structural Breaks in the Selected Model

As mentioned earlier, we assume that there may be structural breaks in the earnings-returns relation in 1993 (the implementation of the Maastricht Treaty) and 1999 (the locking of the euro), which imply dissimilar sets of parameters in the three sub-periods 1989–92, 1993–98 and 1999–2004. To investigate the validity of this hypothesis, we consider three separate specifications of equation (3), the BE estimator, one for each sub-period $s = 1, 2, 3$, as follows:

$$\overline{E}_{is} = d_{is}(\alpha_{0s} + \alpha_{1s}\overline{D}_{is} + \beta_{0s}\overline{R}_{is} - \beta_{1s}\overline{D_{is}R_{is}} + C_{is} + \overline{v}_{is}), \qquad (8)$$

where $\overline{E}_{is}$, $\overline{D}_{is}$, $\overline{R}_{is}$ and $\overline{D_{is}R_{is}}$ are averaged with respect to s, and d_{is} is a dummy variable that is equal to 1 for sub-period s and 0 otherwise. To test the null hypothesis of no structural breaks, we examine whether the equalities $\alpha_{01} = \alpha_{02} = \alpha_{03}$, $\alpha_{11} = \alpha_{12} = \alpha_{13}$, $\beta_{01} = \beta_{02} = \beta_{03}$ and $\beta_{11} = \beta_{12} = \beta_{13}$ hold at the same time, and to do that, we first bring together the three specifications described by equation (8), and then estimate the pooled model by A-WLS so that we allow for its unbalanced T_{is} structure.[18] Thereafter, we may apply a conventional linear Wald test W to

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[16] At the 5 per cent significance level, the RE estimator converges to the pooled OLS estimator in fifteen EU member state samples only. For the remaining samples (all 3 U.S., 3 EU samples, and at the EU member state level, the remaining 27 samples), the Hausman (1978) specification test finds RE to be inconsistent in 3 EU samples, 2 U.S. samples and 18 EU member state samples.

[17] The WE estimator finds only 19 significant β_1 and 38 significant α_0 coefficients in contrast to the BE which finds 41 significant β_1 and 48 α_0 coefficients, out of a total 51 sample estimations.

[18] The datasets are unbalanced both with respect to the different sub-period lengths (the first sub-period covers four years, and the second and third six years each) and, as mentioned previously with regard to equation (3), to variation in panel length.

TABLE 4

ESTIMATION OF EARNINGS CONSERVATISM IN THE U.S. AND EU

	Period	Firms	α_0	α_1	β_0	β_1	R^2
U.S.	1989–92	2,286	0.069***	0.021	0.040***	0.446***	21.92%
	1993–98	5,051	0.100***	0.177***	–0.044	1.381***	9.71%
	1999–2004	6,479	0.075***	0.039**	0.066***	0.592***	31.01%
EU	1989–92	9,176	0.096***	0.038***	0.062***	0.509***	28.59%
	1993–98	16,793	0.049**	0.147**	0.043*	0.919***	2.15%
	1999–2004	20,579	0.099***	–0.015	0.069***	0.626***	31.09%

Note: Firms indicate the number of firm-panels within the sample. α_0, α_1, β_0 and β_1 are the estimated coefficients from equation (3) and R^2 is the coefficient of determination. *** indicates significance at the 0.1%, ** at the 1% and * at the 5% levels.

examine the joint hypothesis of equal parameter coefficients across sub-periods.[19] As predicted, the results are strongly in favour of the inclusion of these particular structural breaks. For both the EU and the U.S. samples, W rejects the null with $p < 0.0001$ (F-statistics of 37.12 and 9.62, respectively).

Empirical Results

Table 4 presents the estimated coefficients of equation (3) for the period 1989–2004 by allowing for structural breaks in 1993 and 1999. The model describes the manner in which reported earnings incorporate the economic gains and economic losses of the firm during the period, using contemporaneous changes in shareholder value as a proxy, reflecting either the good news of a share price increase or the bad news of a share price decrease.

As can be observed in Table 4, the β_1 coefficients on the incremental effect of bad news are significant and high in all cases. In the EU, β_1 increases from 0.509 in the pre-Maastricht period to 0.919, and then drops to 0.626 after the locking of the euro. By comparison, the respective increase in the U.S. is from 0.446 to 1.381, then falling to 0.592. In general, it appears that firms in the EU and the U.S. operate under similar levels of earnings conservatism once we allow for firm-level variability. The relatively low values of β_0 in both the EU and the U.S. are to be expected as firms tend to be cautious when reacting to the appearance of good news about economic gains, not recognizing these in accounting income until they are eventually realized. At the same time, the coefficient α_0, which, as Pope and Walker (1999) explain, captures a proportion of permanent earnings, is positive and highly significant in each sample. This should not be surprising, since conservative

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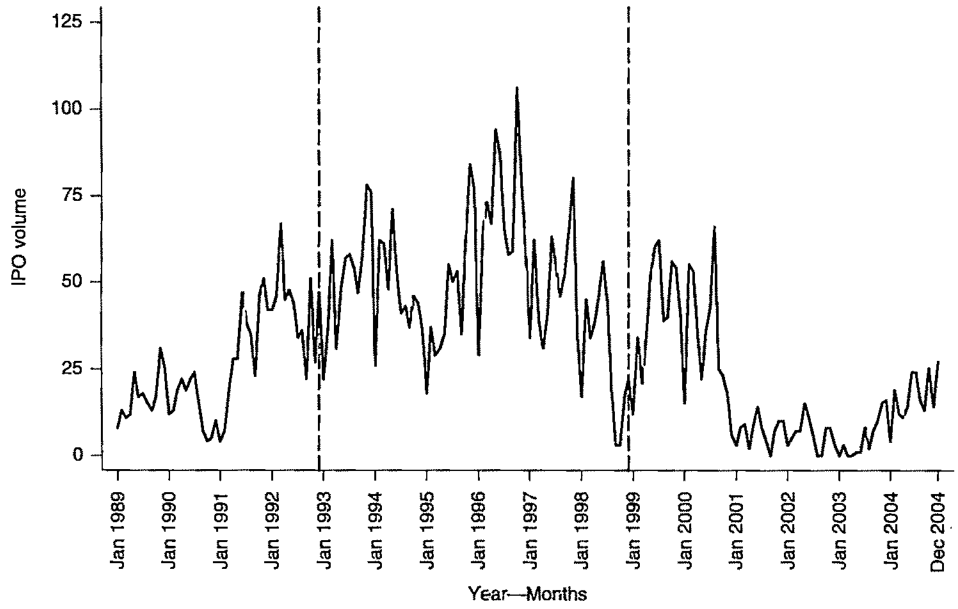
[19] The generalized Wald test W is detailed in Greene (2005, p. 486) and has an F distribution with $(k, n - 2k)$ degrees of freedom, with k parameters and n total observations for the stacked model. The use of a W type of test is justified, since the underlying distribution of the test-statistic remains unaltered even in the presence of structural breaks (Andrews, 1993).

FIGURE 3

VOLUME OF INITIAL PUBLIC OFFERINGS IN THE U.S. (1989-2004)



Note: The graph presents the number of IPOs per month for the U.S. The data are collected by Ibbotson *et al.* (1994) and from Jay Ritter's website: http://bear.cba.ufl.edu/ritter.

accounting points to a significantly positive α_0 that is proportional to the good news valued by the market in the past, the recognition of which was deferred to future periods in a gradual yet permanent manner.

The high levels of earnings conservatism in the second period may be related to the boom in stock prices during those years. Equity prices reached high levels and afterwards were considered to be overvalued both in the U.S. (see, e.g., Jensen, 2004) and in European countries (see, e.g., De Bie and De Haan, 2004). This situation had led many companies to raise more capital through the equity markets, as documented by Pastor and Veronesi (2005), and the increased level of equity financing is evident in the high volume of initial public offerings (IPOs) in the U.S., as shown in Figure 3. A broader equity base of this kind is likely to create more demand for timelier bad news recognition, especially in an economic zone with relatively strong shareholder protection, such as the U.S. Although the estimates of asymmetric timeliness fall from 1999 onwards, after the stock bubble, it is nevertheless the case that the conservatism level in the last sub-period examined is higher than in the initial sub-period, in both the U.S. and the EU.

Results at the member state level within the EU are provided in an Appendix, together with a comparison with previously published estimates obtained using

OLS methodology. It can be seen that, by allowing for firm-specific effects, the estimation with our sample gives generally larger β_1 coefficients than reported in the prior literature.[20] For instance, the significant β_1 OLS coefficients for the French sub-sample, which vary between 0.070 and 0.251 depending on the study that is cited, are noticeably lower than the between-effects estimates, which vary between 0.390 and 0.555 over the three sub-periods involved in our own study. On another issue, the comparison with previously published estimates in Panel B of the Appendix also shows how the range of returns (from minimum to maximum) differs considerably from one sample to another, which is consistent with the view advanced earlier that a univariate outlier deletion procedure that discards 1 per cent from each tail lacks robustness. Also, by comparison with other published results, which invariably have reported on OLS estimations, the *R*-squared from the between-effects estimator appears to be considerably higher.[21] Therefore, it may be concluded that the higher *R*-squareds from the BE estimation point to a better specified model, reflecting more of the variation in mean-returns contemporaneously when these are negative. An important conclusion of this study is that, once unobserved and unobservable firm-specific effects are accounted for, the responsiveness of earnings to bad news from the stock market is much higher in comparison to the aggregated pooled firm-year estimate.

Finally, as for the α_1 coefficient, zero is shown in Panel A of the Appendix to be a plausible estimate across the member states of the EU or, in cases where the estimate is statistically significant, it is usually very low. This coefficient may be interpreted as the reversal of prior year market information in the light of current value changes, and for this reason we would expect it to be very close to zero. Support for this view can be seen in Raonic *et al.* (2004, p. 133), who find insignificant α_1, and attribute their result to the fact that 'the lack of timeliness in European financial reporting is manifested primarily in a tendency to delay the recognition of good news'. Similarly Giner and Rees (2001) do not find this coefficient significant in their analysis at the EU level. In a more analytical setting, Beaver and Ryan (2005) demonstrate that the reverse regression of earnings on current returns is strongly non-linear and passes through zero, proposing a polynomial approach to the problem that discards the use of dummy variables that are dichotomous on zero. Their suggestion implies the exclusion of those parameters that account for past market good news conveyed in current earnings (α_0) and the incremental past information that is contained in current bad news (α_1). However, while we would expect that $\alpha_1 = 0$, our results show that α_0 contains significant information.

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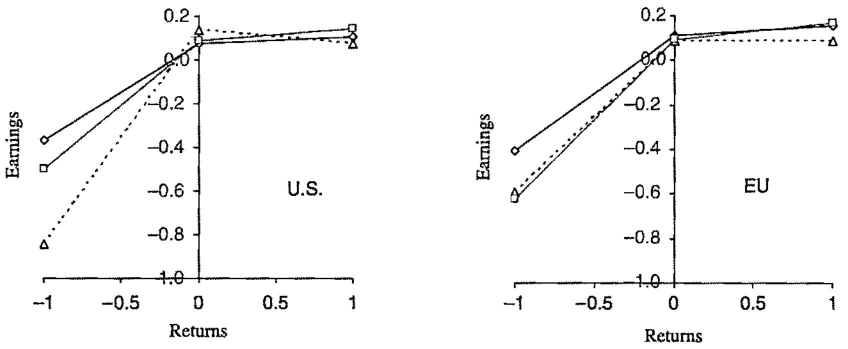
[20] The Appendix shows details of the samples used in eight prior studies, together with the *R*-squareds and regression coefficients from OLS estimations. To assist comparison, OLS estimates are also given for the data used in the present study for the full period 1989–2004, deleting the upper and lower 1 per cent of the distribution in this case to be consistent.

[21] Although the between-effects *R*-squareds reported for the EU in Table 3 are relatively low in the second sub-period, they are still substantially higher than the OLS fit, the *R*-squared for each sub-period being as follows: 1989–1992 BE 28.59%, OLS 11.14%; 1993–1998 BE 2.15%, OLS 0.81%; and 1999–2004 BE 31.09%, OLS 6.30%.

FIGURE 4

A SIMPLIFIED REPRESENTATION OF EARNINGS CONSERVATISM IN THE U.S. AND EU



	Period	Firms	α_0	β_0	β_1	R^2
U.S.	1989–92	2,286	0.0747***	0.0333**	0.4099***	21.70%
	1993–98	5.051	0.1400***	−0.0644**	1.0463***	8.68%
	1999–2004	6.479	0.0868***	0.0543***	0.5351***	30.57%
EU	1989–92	9.176	0.1124***	0.0436***	0.4749***	28.27%
	1993–98	16.793	0.0903***	0.0301	0.6827***	1.91%
	1999–2004	20.579	0.0937***	0.0724***	0.6412***	31.08%

Note: Firms indicates the number of firm-panels within the sample. The solid black line indicates the period 1989–92, the dashed black line the period 1993–98 and the solid grey line the period 1999–2004. All insignificance coefficients (less than the 5% level) are set to zero in the graph. R^2 is the coefficient of determination *and* α_0, β_0 and β_1 are the coefficients from the between-effects estimation of the restricted model $\bar{E}_i = \alpha_0 - \beta_0\bar{R}_i + \beta_1\overline{D_iR_i} + C_i + \bar{v}_i$. *** indicates significance at the 0.1%, ** at the 1% and * at the 5% levels.

Given the above, the analysis proceeds by restricting the reverse regression of equation (3) so that it includes the constraint $\alpha_1 = 0$ and without constraint on α_0. In Figure 4 we show how the predicted change in earnings yield is affected by a unit stock price change, with linear predictors that are not discontinuous at zero (the estimated coefficients are tabulated below the graphs). The differences between the U.S. and the EU are seen to be relatively small. Indeed, by comparing the first and last periods, it can be seen that conservatism in the EU increased at a similar rate to the U.S.[22] What is more, at the firm-level, the β_1 coefficients appear more plausible than in previous studies on conservatism that have used OLS regressions (see Appendix). As firms are expected to react immediately to bad news, it is reasonable to expect $\beta_0 + \beta_1 \rightarrow 1$. This seems to be borne out in the findings, as $\beta_0 + \beta_1$ now tends towards the value of 1, especially in the second period in the U.S. ($\beta_0 + \beta_1 = 0.9819$).

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[22] The reaction of U.S. firms to bad news for the first period in relation to the third period is equal to $(\beta_0 + \beta_1)_{1989-1992}/(\beta_0 + \beta_1)_{1999-2004} = 0.75$, which is a similar rate to the respective reaction of EU firms (about 0.73).

Finally, the α_0 coefficient remains positive and highly significant in the restricted estimation. More importantly, α_0 now appears to reflect the cost of capital, as modelled by Pope and Walker (1999). In particular, the evolution of the intercept tracks the movements in interest rates that were depicted earlier in Figure 1, suggesting an association with the cost of debt. It is evident that short-term interest rates were lower in the U.S. than in the EU for the first period, while for the second period the U.S. short-term interest rate moves to a higher level than in the EU, and both fall substantially in the third period to less than 6 per cent. Likewise, the component of earnings yield captured by α_0 rises from 7.47 per cent to 14.0 per cent and then falls to 8.68 per cent for the U.S. firms, and falls from 11.24 per cent initially in the EU to about 9 per cent thereafter.

CONCLUSION

This paper focuses on earnings conservatism and provides new evidence in the EU and the U.S., by using new procedures that account for variability at the firm level. Although we argue that the economic integration achieved to date in the EU is consistent with the harmonization of the drivers of earnings conservatism, we consider that other factors that are either unobservable or unobserved are by no means homogeneous, and they should be taken into account when establishing the empirical model to be used in the analysis. A key finding is that the estimated responsiveness of earnings to bad news is substantially higher when those firm-specific effects are modelled in comparison to the aggregated pooled firm-year estimate.

The analysis covers a period (1989–2004) in which several important economic events took place in the EU, from the signing of the Maastricht Treaty and the establishment of economic convergence criteria to the locking of most currencies into the euro. It is shown that accounting has become more conservative in the EU when taken as a whole, but this is also the case in the U.S., and furthermore there is little evidence now of marked differences in the asymmetric timeliness of earnings between the two. In our view, any change in this property of earnings is likely to be attributable to common economic factors that influence firms similarly in both locations.

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APPENDIX

Panel A: Between-effects estimation by EU member state using a multivariate outlier filter applied to firm-means

	1989–92					1993–98					1999–2004				
	α_0	α_1	β_0	β_1	R^2	α_0	α_1	β_0	β_1	R^2	α_0	α_1	β_0	β_1	R^2
Austria	0.082**	–0.036	0.025	0.196	0.271	0.071**	–0.007	0.074	0.161	0.121	0.163***	–0.135**	–0.024	0.406***	0.499
Belgium	0.080*	–0.018	0.127	0.079	0.196	0.109***	–0.052	–0.016	0.912***	0.276	0.104***	0.032	0.090*	0.588***	0.398
Denmark	0.070**	0.005	0.148**	0.264*	0.432	0.091***	0.007	0.046	0.434***	0.257	0.142***	–0.028	0.107*	0.741***	0.579
Finland	0.133*	–0.05	0.049	0.461**	0.368	0.106***	–0.024	0.028	0.108	0.121	0.121***	–0.059*	0.01	0.276***	0.424
France	0.111***	–0.001	0.062	0.390***	0.195	0.049**	0.031	0.118***	0.555***	0.229	0.079***	–0.02	0.166***	0.506***	0.287
Germany	0.040**	0.059*	0.044	0.497***	0.245	0.062***	–0.011	0.072**	0.529***	0.287	0.104***	–0.029	0.069*	0.618***	0.265
Greece	0.103**	–0.04	0.059	0.074	0.478	0.096***	–0.023	–0.013	0.224	0.072	0.077***	–0.022	0.001	0.113***	0.143
Ireland	0.147***	0.035	0.04	0.761***	0.642	0.097**	0.024	0.016	0.626***	0.418	0.113**	–0.022	–0.05	0.493**	0.271
Italy	0.104**	–0.005	0.078	0.409*	0.203	0.061	0.065	0.064	1.092***	0.303	0.091***	–0.034	0.102	0.484***	0.375
Netherlands	0.090***	0.033	0.139**	0.188	0.259	0.092***	0.003	0.058*	0.405**	0.193	0.141***	–0.092*	–0.03	0.415***	0.324
Portugal	0.173***	–0.087	0.017	0.219	0.363	0.145***	–0.053	–0.138*	0.756***	0.269	0.122	0.03	0.292*	1.324***	0.373
Spain	0.065	0.029	–0.061	0.395	0.024	0.110***	–0.032	0.013	0.665**	0.193	0.077**	0.016	0.087	0.279	0.098
Sweden	0.094***	0.006	–0.019	0.356***	0.374	0.074***	–0.048	0.101***	0.062	0.189	0.072***	–0.023	0.141***	0.560***	0.609
U.K.	0.092***	0.063***	0.095***	0.504***	0.376	0.086***	0.021	–0.004	0.588***	0.215	0.108***	–0.032	0.025	0.706***	0.341

Note: α_0, α_1, β_0 and β_1 are the estimated coefficients from the between-effects estimator of equation (3). R^2 is the coefficient of determination. *** indicates significance at the 0.1%, ** at the 1% and * at the 5% levels.

APPENDIX

(CONTINUED)

Panel B: OLS estimation with elimination of upper and lower 1% compared with prior published research

	Database	Period	Earnings	β_0	β_1	R^2	n	Earnings				Returns			
								Mean	*SD*	Min	Max	Mean	*SD*	Min	Max
Austria	**WS**	**89-04**	**A**	**0.019**	**0.159*****	**0.112**	**829**	**0.04**	**0.12**	**–0.57**	**0.38**	**0.05**	**0.43**	**–0.77**	**2.30**
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.069	–0.093	0.030	361								
Belgium	**WS**	**89-04**	**A**	**0.056*****	**0.213*****	**0.160**	**1,113**	**0.04**	**0.14**	**–0.82**	**0.47**	**0.06**	**0.39**	**–0.75**	**1.89**
García Lara and Mora (2004)	EX	87-04	A	0.081***	0.144	0.078	378	0.07	0.12	–0.54	0.83	0.14	0.36	–0.53	1.88
Raonic *et al.* (2004)	DS	87-99	B	0.054*	0.223**	0.091	200	0.09	0.12	–0.30	1.19	0.19	0.36	–0.67	1.58
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.029	0.181***	0.123	337								
Denmark	**WS**	**89-04**	**A**	**0.052*****	**0.225*****	**0.185**	**1,568**	**0.04**	**0.14**	**–0.81**	**0.54**	**0.08**	**0.43**	**–0.75**	**2.02**
Raonic *et al.* (2004)	DS	87-99	B	0.051***	0.439***	0.426	119	0.06	0.09	–0.29	0.30	0.17	0.45	–0.50	3.03
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.039	0.244***	0.154	498								
Finland	**WS**	**89-04**	**A**	**0.015**	**0.220*****	**0.136**	**1,210**	**0.05**	**0.14**	**–0.71**	**0.52**	**0.13**	**0.50**	**–0.80**	**2.59**
Raonic *et al.* (2004)	DS	87-99	B	0.018	0.135*	0.051	146	0.11	0.15	–0.25	0.89	0.30	0.70	–0.63	3.69
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.006	0.110*	0.072	428								
France	**WS**	**89-04**	**A**	**0.026*****	**0.219*****	**0.100**	**7,246**	**0.02**	**0.17**	**–1.20**	**0.48**	**0.08**	**0.47**	**–0.82**	**2.63**
Ball *et al.* (2000)	GV	85-95	B	0.080***	0.070*	0.126	1,054	0.06	0.11			0.15	0.43		
Giner and Rees (2001)	EX	90-98	A	0.044**	0.251***	0.134	1,425	0.04	0.12	–0.59	0.47	0.11	0.36	–0.61	1.65
García Lara and Mora (2004)	EX	87-04	A	0.052***	0.190***	0.132	1,313	0.05	0.13	–0.76	0.51	0.12	0.43	–0.67	1.98
Raonic *et al.* (2004)	DS	87-99	B	0.019**	0.031	0.063	555	0.06	0.08	–0.43	0.46	0.21	0.47	–0.85	3.56
García Lara *et al.* (2005)	DS	90-00	B	0.020*	0.160***	0.120	1,637	0.04	0.10	–0.95	0.36	0.08	0.43	–0.80	2.38
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.046***	0.040	0.064	2,439								

Germany	**WS**	**89-04**	**A**	**0.002**	**0.335*****	**0.116**	**6,150**	**−0.01**	**0.20**	**−1.43**	**0.61**	**0.02**	**0.46**	**−0.88**	**2.38**
Ball *et al.* (2000)	GV	85-95	B	0.050***	0.100**	0.054	1,245	0.04	0.09			0.09	0.32		
Giner and Rees (2001)	EX	90-98	A	0.033	0.207***	0.090	1,391	0.02	0.10	−0.56	0.32	0.04	0.29	−0.60	1.24
García Lara and Mora (2004)	EX	87-04	A	0.032**	0.134***	0.079	1,702	0.03	0.10	−0.50	0.38	0.09	0.33	−0.55	1.64
Raonic *et al.* (2004)	DS	87-99	B	0.006	0.166*	0.056	297	0.06	0.06	−0.44	0.65	0.15	0.53	−0.62	7.26
García Lara *et al.* (2005)	DS	90-00	B	0.020	0.220***	0.090	3,245	0.02	0.12	−0.93	0.35	0.02	0.35	−0.81	2.36
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.035*	0.220***	0.108	3,056								
Greece	**WS**	**89-04**	**A**	**0.001**	**0.070*****	**0.134**	**1,522**	**0.04**	**0.07**	**−0.39**	**0.28**	**0.48**	**2.09**	**−0.85**	**18.30**
Bushman and Piotroski (2006)	CS/GV	92-01	B	−0.002	0.087*	0.156	163								
Ireland	**WS**	**89-04**	**A**	**−0.015**	**0.229*****	**0.086**	**713**	**0.03**	**0.14**	**−0.92**	**0.30**	**0.14**	**0.54**	**−0.77**	**3.64**
Raonic *et al.* (2004)	DS	87-99	B	−0.003	0.382*	0.277	136	0.08	0.09	−0.49	0.32	0.16	0.43	−0.62	1.90
Bushman and Piotroski (2006)	CS/GV	92-01	B	−0.031	0.495***	0.206	260								
Italy	**WS**	**89-04**	**A**	**0.039****	**0.199*****	**0.101**	**1,857**	**0.01**	**0.15**	**−0.94**	**0.28**	**0.02**	**0.37**	**−0.70**	**1.79**
García Lara and Mora (2004)	EX	87-04	A	0.074**	0.081	0.067	624	0.04	0.15	−0.73	0.54	0.05	0.38	−0.62	2.03
Raonic *et al.* (2004)	DS	87-99	B	0.026	0.213***	0.061	269	0.06	0.13	−0.49	1.09	0.21	0.61	−0.60	5.13
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.005	0.135***	0.046	582								
Netherlands	**WS**	**89-04**	**A**	**−0.008**	**0.251*****	**0.147**	**2,056**	**0.06**	**0.11**	**0.61**	**0.29**	**0.07**	**0.39**	**−0.78**	**1.83**
García Lara and Mora (2004)	EX	87-04	A	0.054**	0.146**	0.157	680	0.09	0.10	−0.38	0.61	0.16	0.37	−0.60	1.47
Raonic *et al.* (2004)	DS	87-99	B	0.011	0.153**	0.103	397	0.09	0.08	−0.37	0.76	0.21	0.42	−0.71	2.17
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.009	0.177***	0.161	916								
Portugal	**WS**	**89-04**	**A**	**−0.106****	**0.425*****	**0.054**	**668**	**0.00**	**0.26**	**−1.95**	**0.60**	**0.09**	**0.46**	**−0.71**	**2.50**
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.018	0.263	0.027	163								
Sweden	**WS**	**89-04**	**A**	**0.016***	**0.268*****	**0.174**	**2,305**	**0.01**	**0.16**	**−0.83**	**0.39**	**0.11**	**0.58**	**−0.85**	**3.75**
Raonic *et al.* (2004)	DS	87-99	B	−0.042	0.180	0.061	187	0.16	0.22	−0.44	1.30	0.29	0.59	−0.59	2.78
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.043	0.486***	0.304	671								
Spain	**WS**	**89-04**	**A**	**0.042***	**0.255*****	**0.052**	**1,330**	**0.04**	**0.20**	**−1.82**	**0.50**	**0.11**	**0.44**	**−0.69**	**2.40**
García Lara and Mora (2004)	EX	87-04	A	0.038	0.518**	0.077	419	0.02	0.35	−2.93	1.34	0.14	0.57	−0.83	0.57
Raonic *et al.* (2004)	DS	87-99	B	0.041***	0.091*	0.167	275	0.08	0.07	−0.26	0.46	0.27	0.61	−0.63	4.49
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.056**	0.314***	0.114	555								

APPENDIX

(CONTINUED)

	Database	Period	Earnings	β_0	β_1	R^2	n	Earnings				Returns			
								Mean	*SD*	Min	Max	Mean	*SD*	Min	Max
U.K.	**WS**	**89-04**	**A**	**–0.016*****	**0.298*****	**0.119**	**17,181**	**0.01**	**0.17**	**–1.25**	**0.32**	**0.05**	**0.50**	**–0.86**	**2.96**
Pope and Walker (1999)	CS	76-96	B	0.081***	0.165***	0.172	7,189	0.09	0.13	–1.31	1.18	0.16	0.47	–0.86	5.40
Pope and Walker (1999)	CS	76-96	A	0.031***	0.276***	0.104	7,189	0.08	0.16	–1.57	1.24				
Ball *et al.* (2000)	GV	85-95	B	0.040***	0.150***	0.138	5,758	0.07	0.09			0.14	0.38		
Giner and Rees (2001)	EX	90-98	A	0.027***	0.289***	0.151	6,022	0.04	0.14	–1.08	0.36	0.14	0.44	–0.75	2.29
García Lara and Mora (2004)	EX	87-04	A	0.014	0.243***	0.135	6,285	0.05	0.13	–0.90	0.38	0.08	0.39	–0.70	1.61
Raonic *et al.* (2004)	DS	87-99	B	0.010	0.111***	0.074	800	0.07	0.06	–0.43	0.45	0.17	0.43	–0.89	5.72
García Lara *et al.* (2005)	DS	90-00	B	0.020***	0.240***	0.140	10,131	0.04	0.14	–0.97	0.37	0.06	0.45	–0.82	2.39
Bushman and Piotroski (2006)	CS/GV	92-01	B	0.002	0.276***	0.105	7,596								
U.S.A.	**WS**	**89-04**	**A**	**0.012*****	**0.114*****	**0.057**	**13,739**	**0.05**	**0.08**	**–0.58**	**0.38**	**0.16**	**0.44**	**–0.71**	**2.32**
Basu (1997)	CS/CRSP	63-90	B	0.075***	0.166***	0.115	25,665								
Pope and Walker (1999)	CS	76-96	B	0.026***	0.282***	0.112	18,380	0.07	0.13	–2.00	0.64	0.14	0.39	–0.88	4.17
Pope and Walker (1999)	CS	76-96	A	0.077***	0.242***	0.118	18,380	0.07	0.14	–2.00	0.82				
Ball *et al.* (2000)	GV	85-95	B	0.030***	0.290***	0.147	21,225	0.03	0.14			0.13	0.43		
Bushman and Piotroski (2006)	CS/GV	92-01	B	–0.005	0.312***	0.114	26,776								
EU	**WS**	**89-04**	**A**	**0.003**	**0.263*****	**0.116**	**45,754**	**0.02**	**0.16**	**–1.17**	**0.41**	**0.07**	**0.50**	**–0.85**	**3.03**

Note: All studies included report OLS estimates, and eliminate the upper and lower 1% of variability from both earnings and returns. For comparison, we also provide in bold the OLS estimates obtained with the samples used in this study. Commercial databases: WS Worldscope, CS Compustat, GV Global Vantage, EX Extel, DS Datastream. Earnings definitions: A is after extraordinary items, and B is before extraordinary items. β_0 and β_1 are the estimated coefficients from the pooled OLS estimation of equation (1). R^2 is the coefficient of determination, and n is the number of firm-year observations in the sample. Basu (1997) and Bushman and Piotroski (2006) do not provide country-specific descriptive statistics. *** indicates significance at the 0.1%, ** at the 1% and * at the 5% levels.

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Discussion of Grambovas, Giner and Christodoulou

Grambovas, Giner and Christodoulou (hereafter GGC) use a reverse regression approach (Basu, 1997) to examine 'conservatism', or the asymmetric timeliness of accounting earnings, for a large sample of U.S. and European (EU) firms over the period 1989 to 2004. Panel data methods are used to model the cross-sectional time-series structure of the data, with structural breaks at the time of the Maastricht Treaty (1993) and the introduction of the euro (1999). A weighted least squares between-effects estimator (which assumes time-invariant effects) outperforms other panel models. The high R-squared from this model implies the existence of highly significant firm-specific effects.

A key finding is that the estimated responsiveness of earnings to bad news is substantially higher, in comparison to prior research which has pooled firm-year estimates, when firm-specific effects are modelled. The study also shows that the asymmetric timeliness of accounting earnings has become more conservative not only in the U.S. but also in the EU. Furthermore, there is little evidence of a difference in the asymmetric timeliness of earnings between the two jurisdictions.

Most of the discussion at the conference speculated on the firm-specific and other effects that might impact the asymmetric timeliness of news in earnings. There was also some discussion on the relative merits of 'forward' versus 'reverse' regressions. In this commentary I discuss three questions. What is conservatism? What is the relevance of asymmetric timeliness of earnings for standard setting? And, what are the possible firm-specific effects that drive asymmetric timeliness of earnings?

WHAT IS CONSERVATISM (OR PRUDENCE)?

A review of the accounting literature reveals there are several widespread views on the nature of conservatism. Table 1 lists a selection of these.[1]

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[1] Table 1 is not a complete range of descriptions. Other definitions and measures of conservatism have been employed. Beaver and Ryan (2005) distinguish between conditional (i.e., news dependent) conservatism and unconditional (i.e., news independent) conservatism. Richardson and Tinaikar (2004) and Beaver and Ryan (2005) also distinguish between *ex ante* conservatism (recognition and initial measurement accounting policies) and *ex post* conservatism (subsequent measurement accounting policies). Feltham and Ohlson (1995, 1996) view conservative accounting as the expected market value of a firm's equity exceeding the expected book value of its equity in the long run.

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TABLE 1

DESCRIPTIONS OF CONSERVATISM

Basu (1997): 'I interpret conservatism as capturing accountants' tendency to require a higher degree of verification for recognizing good news than bad news in financial statements. Under my interpretation of conservatism, earnings reflects bad news more quickly than good news. For instance, unrealized losses are typically recognized earlier than unrealized gains. This asymmetry in recognition leads to systematic differences between bad news and good news periods in the timeliness and persistence of earnings.'

Solomons (1986): '[T]oo often in the past conservatism has been an excuse for attempts to present too consistently gloomy a picture of an enterprise's financial position and earnings by, for example, undervaluing inventory or over providing for deferred maintenance'.

FASB (1980): Conservatism is 'a prudent reaction to uncertainty to try to ensure that uncertainties and risks inherent in business situations are adequately considered'.

IASC (1989): 'Such uncertainties are recognized by the disclosure of their nature and extent and by the exercise of prudence in the preparation of financial statements. Prudence is the inclusion of a degree of caution in the exercise of the judgements needed in making the estimates required under conditions of uncertainty, such that assets and or income are not overstated and liabilities or expenses are not understated. However, the exercise of prudence does not allow, for example, the creation of hidden reserves or excessive provisions.'

Grady (1965): 'Conservatism is not a justification for deliberate understatement. It is rather a quality of judgement to be exercised in evaluating the uncertainties and risks present in a business entity to assure that reasonable provisions are made for potential losses in the realization of recorded assets and in the settlement of actual and contingent liabilities.'

The Basu (1997) definition considers that under conservative accounting there is more timely recognition in earnings of bad news than good news. The following 'reverse regression' is used:

$$X_t/P_{t-1} = \alpha_0 + \alpha_1 DR_t + \beta_0 R_t + \beta_1 {}^* DR_t, \tag{1}$$

where X_t is annual earnings, P_{it-1} is market capitalization at the beginning of the year, R_t is the contemporaneous annual stock return which proxies for 'news', DR_t is a dummy variable set to 1 if $R_t < 1$ and 0 otherwise. In this regression, β_0 measures the response of earnings to positive returns and $(\beta_0 + \beta_1)$ measures the response to negative returns. *News-conservatism* implies that earnings is more sensitive to unexpected negative contemporaneous returns than to unexpected positive contemporaneous returns (i.e., $(\beta_0 + \beta_1) > \beta_0$ or that $\beta_1 > 0$). Basu finds the β_1 coefficient significantly different from zero and that earnings is four and one half times more sensitive to negative returns than to positive ones. Adjusted R-squareds from separate news regressions indicate that the explanatory power of negative returns is greater than positive returns.

The Basu (1977) measurement of conservatism represents a well accepted empirical approach in accounting research. Ball *et al.* (2000) and Bushman and Piotroski (2006) extend the U.S. results to investigate cross-country differences in news-conservatism. A sizable literature has also developed using European data (e.g., Pope and Walker, 1999; Giner and Rees, 2001; García Lara and Mora, 2004; Raonic *et al.*, 2004; Ball and Shivakumar, 2005; García Lara *et al.*, 2005; Huijgen and Lubberink, 2005).

The Solomons (1986) quote in Table 1 describes conservatism as a type of 'earnings management'. This view uses the adage 'anticipate no profit but anticipate all losses' as authoritative support to deliberately and consistently understate net assets and profit. In discussing the nature of conservatism, I think we should take *earnings-management-conservatism* 'off the table', because it is not descriptive of accounting practice. For example, not all firms employ income minimization accounting policies (e.g., accelerated depreciation or LIFO). Unfortunately, the 'anticipate no profit but anticipate all losses' adage is often used as support in news-conservatism studies.

Table 1 includes several descriptions of conservatism from the standard setting literature. The FASB (1980) and IASC (1989) descriptions are from (normative) conceptual framework documents. The common theme in these quotes is that conservatism relates to 'uncertainties'. In particular, this description of conservatism relates to exercising caution in making estimates. Furthermore, the IASB description indicates that conservatism is primarily concerned with the disclosure of uncertainty. Thus *estimation-conservatism* is concerned with disclosure of variance (possibly with emphasis on downside risk) surrounding estimates used in financial statements. The Grady (1965) description in Table 1 is important because it reflects an inventory of generally accepted accounting principles constructed at that time. Thus estimation-conservatism has been considered best practice since, at least, 1965.

WHAT IS THE RELEVANCE OF NEWS-CONSERVATISM RESEARCH FOR FINANCIAL ACCOUNTING STANDARD SETTING?

Given the differences of opinion on the relevance of value relevance for standard setters (Holthausen and Watts, 2001; Barth *et al.*, 2001), it seems worthwhile to consider the relevance of news-conservatism for standards setters. I first examine claims about conservatism, timeliness and verifiability. I then look at two other features of news-conservatism that standard setters might find less than appealing: (a) the income statement approach of news-conservatism, and (b) the 'partial' measure of conservatism.

Conservatism, Timeliness and Verifiability

To be of general use to standard setters (i.e., at a principles level), research must be relevant to the conceptual framework. News-conservatism studies—in particular Basu (1997) and Watts (2003a, 2003b)—have invoked conceptual framework terminology used by standard setters such as 'conservatism', 'timeliness' and 'verifiability'.[2]

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[2] Empirical research into 'conservatism' might also have implications for standard setters at the recognition, measurement or display level. For example, conditional/unconditional and *ex ante/ex post* definitions of conservatism distinguish between initial and subsequent measurement. However, the news-conservatism research does not invoke these attributes and relies on conceptual framework terms such as 'conservatism', 'timeliness' and 'verifiability'.

In my opinion, use of the term 'conservatism' to describe asymmetric timeliness of earnings is unfortunate. The term 'conservatism' as used by Basu (1997) does not coincide with the technical usage (i.e., estimation-conservatism) employed by standard setters. I believe it is incumbent on empirical researchers to use more precise language to describe the effect they are examining, rather than borrow and misrepresent terms that already have an established technical interpretation.[3] The use of the same term, already in use by standard setters, causes potential misinterpretation between academics and standard setters which is unfortunate, given the calls for academic research to be more relevant (Schipper, 1994; Leisenring and Johnson 1994). In this instance, it is particularly unfortunate because neither the FASB nor IASB includes 'conservatism' in its hierarchy of characteristics that make accounting information useful.

In the conceptual framework, timeliness refers to 'undue delay in the reporting of information' (IASC, 1989) or having information 'available to a decision maker before it loses its capacity to influence decisions' (FRSB, 1980). These descriptions of timeliness would seem more suited to narrow window content studies than value relevance studies that employ annual earnings and annual returns. Furthermore, Lambert (1996) notes that the FASB would not exclude depreciation on the basis that it was pre-empted by other publicly available information.

Basu (1997) and others (e.g., Watts, 2003a, 2003b) link news-conservatism with 'verifiability'. However, the link between verifiability and conservatism is less than obvious. For example, the lower of cost or market rule (an often quoted example of conservatism) requires an estimate of the market value of inventory compared to the known historic cost. Which is more verifiable? Why is the assessment of fair value below cost more verifiable than fair value above cost? For research and development, why is there a difference in the verifiability of the amount disclosed as an expense and the verifiability of the same amount that is capitalized?[4]

The Income Statement Focus

News-conservatism has an income statement focus. It is concerned with the contemporaneous association between economic earnings and accounting earnings.[5] Economic earnings capture 'news' or the changes in the present values of future cash flows. However, neither the FASB nor the IASB states that the objective of accounting is to measure 'true economic earnings'. Accounting practice typically ignores the value of the firm, and changes in the value of the firm, and records and reports the effects of condition, transactions and events on individual (separable) assets and liabilities. The estimation-conservatism employed by standard setters is concerned with the measurement of assets and liabilities and is therefore a balance sheet notion. In measuring assets and liabilities, accountants use mixed attribute measurement methods (e.g., historic cost, fair value, net realizable value and replacement cost). Furthermore, not all re-valuations impact earnings. Practice employs mixed concepts of capital maintenance (i.e., some value changes go through income and others go through reserves). A balance sheet approach to measuring conservatism would require consideration of dirty surplus items.

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[3] For example, Beaver and Ryan (2000) adopt terms that describe the effect being examined (i.e., bias and lags) rather than use a term such as conservatism, that already has a specific technical meaning to standard setters.

[4] Watts suggests that verifiability (and conservatism) are motivated by the use of accounting in debt contracts, in the estimation of taxes, and by regulators. However, these are all situations where the external party could contract for information in specific purpose financial reports. On the other hand, standard setters, such as the FASB and IASB, are promulgating accounting standards for general purpose financial reports.

[5] Basu (1997) focuses on the income statement, rather than the balance sheet, based on the following argument: 'conservatism in the balance sheet is of dubious value if attained at the expense of the income statement, which is far more significant'. However, since 1980 the FASB and IASC conceptual frameworks emphasize a balance sheet approach (see Storey and Storey 1988).

Partial Nature of Asymmetric Conservatism

If we think of news shocks as being the change in present value of the firm, then news-conservatism involves the subsequent re-measurement of the firm. On the other hand, standard setters are not only concerned with re-measurement but also with recognition, initial measurement and disclosure. Even if cost is viewed as fair value at the date of acquisition, differences between accounting and market can arise on initial recognition. Consider a simple case, where the firm has a positive net present value (NPV) project with a single initial investment and a series of cash inflows. Accounting would capitalize the initial investment in property, plant and equipment.[6] However, as the NPV is positive the value of the firm would be greater than equity. Thus, even on initial measurement there is potential for a 'stock of conservative differences' between market and accounting (book equity).

News-conservatism is concerned with the *changes* in PV of the firm in current year and the subsequent re-measurement of assets and liabilities in earnings for the current year. Accounting earnings for the current year will reflect a number of events and transactions, including:

- Prior period PV estimates realized in revenues and expenses;
- Changes in current period PV estimates realized in revenues and expenses;
- Amortization and impairment of assets and liabilities; and
- Fair value changes for some (mostly financial) assets and liabilities.

Hence, the news-conservatism regression is only a partial measure of the differences between accounting numbers and market values (timeliness). Researchers have used a variety of techniques to overcome the partial nature of news-conservatism. Basu (1997) shows a reduction in the effect of timeliness-conservatism when variables are cumulated over a four year interval. Pope and Walker (1999) include prior period returns in their reverse regression model. Ball *et al.* (2000) allow news to impact on current and following year's earnings. However, including prior and following year's returns seems *ad hoc*. One potential way to capture this missing stock of PVs might be to include the book to market ratio at the beginning of the period.

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[6] If the initial investment was accounted for as research, the amount would be expensed and thus market would be greater than book even if the project was zero NPV. If the entity acquired the project through a business combination then book is likely to equal market.

WHAT ARE THE FIRM-SPECIFIC FACTORS?

The GGC methodology indicates the significance of firm-specific effects. While this is an important discovery, it is unsatisfactory that we do not know what these firm-specific effects are, only that they exist. One suggestion at the conference was that a case study approach might be the best way to identify firm-specific effects. There are a number of potential nuances in accounting methods that might give rise to news-conservatism at the firm level.

As noted, news-conservatism is typically based on the adage that accounting practice 'recognizes all losses immediately and defers gains'. However, this is a very simplistic assumption about accounting practice, but more importantly it does not allow for the existence of specific effects at the jurisdiction, industry or firm level. Consider the impairment of inventory (i.e., the lower of cost or market rule) and the impairment of property, plant and equipment, which are often used examples of conservative accounting practice.

- News-conservatism in accounting is often described as subsequent measurement, typically involving impairment. Many (if not most) bad news shocks to property, plant and equipment are ignored under depreciated historical cost, as the asset is being depreciated to a zero residual amount.[7] There is no accounting 'impairment' where the market values of inventory or property, plant and equipment fall but remain above cost. It is simply not the case that *all* economic losses are recorded under current accounting practice.
- Consider when the market value of inventory falls below cost. In Company A the inventory is written down and recorded at its new 'cost'. In Company B the inventory is not written down but a 'provision for obsolescence' is created. This provision can be reversed in subsequent reporting periods, whereas the inventory in Company A remains at its 'new cost'.
- Some jurisdictions allow the revaluation of property, plant and equipment. In many cases the change in fair value goes direct to equity. In some cases (i.e., investment property) the gain in fair value may be reported in earnings. In some cases the depreciation expense must be based on the revalued amount. However, if land is held then there will be no depreciation impact.
- Some jurisdictions allow or require useful lives and residual values of property, plant and equipment to be re-estimated each year. In these cases the 'shock' of impairment to financial reporting will be minimal.
- If a revalued asset is sold, Firm A might recycle to income the gain or loss contained in the revaluation, whereas Firm B might transfer the revaluation gain or loss directly to retained earnings.

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[7] Sterling (1967) considers that historical cost is a manifestation of conservatism in accounting.

- Impairment to property plant and equipment can be accounted for either retrospectively or prospectively. Consider the example in Basu (1997), where a $70,000 asset is depreciated on a straight line basis over ten years. Thus at the end of year three the asset has a book amount of $49,000 ($70,000–3*$7,000). The 'news' shock occurs at the end of year four and at that date the remaining useful life is re-estimated as three years. A prospective adjustment would simply depreciate the book amount over the remaining four years. That is, depreciation in year four would be $12,250 ($49,000/4). A retrospective approach applies the new accounting policy to prior periods, as far back as practicable. Thus the accumulated depreciation and deprecation would be based on the new estimated life of seven years. The book amount would be adjusted to $40,000 ($70,000–3*$10,000) with a $9,000 prior period adjustment reducing retained earnings and the annual depreciation expense would be $10,000.
- The Basu (1997) examples consider only the impairment of a single item of property, plant and equipment or inventory. However, the firm is a portfolio of assets that are subject to growth, replacement, price changes and technology changes. Furthermore, some jurisdictions allow valuation changes within classes of assets to be offset.
- The timing of when impairment losses are recognized can have an effect on the amount reported in annual earnings. Under the independent interim reporting approach adjustments to asset values are permanent, while under the integrated approach interim accruals would be reversed or adjusted to the annual result.
- Finally, the above accounting considerations ignore the operating cycle of the firm. The impact on inventory of an 'impairment shock' is different for a firm that has monthly turnover of inventory (e.g., a supermarket) than for one that has inventory turnover of two years (e.g., a jeweller).

The above list deals with the impairment of inventories and property, plant and equipment as these are the main examples used to describe conservatism in Basu (1997). Other accounting differences that might give rise to firm-specific differences in the asymmetric timeliness of earnings include: extraordinary items (Pope and Walker, 1999), dirty surplus items, the expensing or capitalization of research and development expenditure, the capitalization of self-constructed assets, the capitalization of interest, the level of financial assets and liabilities that are reported at fair value, and the use of restructuring and maintenance provisions. Hence, the type of assets held by the firm might offer a first approximation of firm-specific effects.

The point is that there are differences in accounting practices (and impacts on earnings) across firms, industries and jurisdictions.[8] Hence, there is a strong possibility of firm-specific accounting effects.[9] Identifying the nature of firm-specific effects, both accounting and non-accounting, is likely to be an important topic for future research.

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[8] Non-accounting differences might be firm-specific incentives created by contracts, litigation exposure, taxation and regulation (Watts 2003a, 2003b).

[9] Penman and Zhang (2002) adopt a definition of conservatism that examines the choice of accounting method that keeps book values of net assets relatively low.

CONCLUDING REMARKS

In news-conservatism regressions, the conservatism coefficient (β_1 in equation (1)) measures the average asymmetry in the recognition of losses versus gains and is typically measured in pooled regressions across periods and firms. The contribution of GGC is that they find a significant firm-specific effect. This is an important contribution to the developing news-conservatism literature. Furthermore, it is likely to be pivotal in the future direction of asymmetric timeliness research. Rather than document differences in asymmetric timeliness across jurisdictions, the results of GGC suggest future research should be directed at the firm-specific level.

Forum participants were also impressed with the method used in the paper for identifying outliers and considered that this is an important innovation on prior research that contributes to the literature.

While I have been critical of the use of the term 'conservatism' to describe asymmetric timeliness of earnings and have raised doubts about its *immediate* utility for standard setters, this is not to say that news-conservatism is unimportant. Basu (1997) and others empirically confirm what is well-known, that accounting has many asymmetric practices with regard to the recognition and measurement of assets and liabilities, some (if not most) of which impact annual earnings. Hence, asymmetric timeliness is an important characteristic of accounting (and earnings) quality. This is of potential interest to academics, financial analysts and standard setters who are interested in understanding the properties of financial statement information and how these are reflected into prices. The identification of firm-specific effects by Grambovas, Giner and Christodoulou is good news for analysts; it means there is a role for identifying and pricing firm specific factors.

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Expected Earnings Growth and the Cost of Capital: An Analysis of Accounting Regime Change in the European Financial Market

This study focuses on the relation between the cost of equity capital and earnings expectations when the properties of accounting that determine earnings vary across different regulatory regimes. More particularly, it addresses the European setting where different types of GAAP regime have continued to function in the presence of the gradual harmonization of the underlying legal framework, and where the adoption of internationally recognized accounting standards by certain firms has anticipated the requirement for International Financial Reporting Standards. On the basis of estimates of the cost of equity that are implied by analysts' earnings forecasts, the article provides evidence that financial market integration may have already contributed to mitigating the economic consequences of accounting diversity, and that switching to IFRS could have a short lived impact on capital markets. Moreover, based on firm level transparency and disclosure rankings provided by Standard and Poor's, it is shown how the quality of financial reporting conditions the implied cost of equity under different GAAP.

Key words: Abnormal earnings growth Analysts' forecasts; Cost of capital; Harmonization; International financial reporting standards; Transparency and disclosure.

This study considers whether differences between accounting regimes lead to biased expected earnings that may have cost of capital effects. It focuses on the European setting where different standard setting authorities have continued to function in the presence of the gradual harmonization of the underlying legal framework. The recent requirement for the application of IFRS by listed firms from 2005 onwards marks a major step in the integration process. The paper assesses the available evidence on the impact of local GAAP on the cost of equity capital in Europe in the period leading up to the regulatory changes that are now under way, and provides preliminary evidence on the effect of the voluntary pre-adoption of international standards.

Ideally, allowing for risk and growth factors, investors should be able to see through any bias arising from GAAP differences and make appropriate adjustments

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to the forward earnings multiple, that is, the ratio that relates expected earnings to the current price. Basically, comparability of forward earnings requires that any bias in forthcoming earnings will reverse in subsequent years so that the accounting method that is used should not affect intrinsic value estimates. On the other hand, the inability of investors to restore fully the effects of the bias in expected earnings would lead to earnings multiples that are not comparable and prices that are not set in a homogeneous way.

It is usual to determine the share price as the present value of future cash flows, consisting of the dividends that are expected per share and the price to be received when the share is sold. However, the price at the end of the holding period depends in turn on dividends expected after that date. Therefore, in the most basic valuation model, an infinite stream of expected dividends values the share as follows:

$$P_0 = d_1(1+r)^{-1} + d_2(1+r)^{-2} + \ldots = \sum_{t=1}^{\infty} d_t(1+r)^{-t}, \tag{1}$$

where d_t is the dividend per share in each future period t, r is the cost of capital and P_0 is the current share price.

Ohlson and Juettner-Nauroth (2005) show that, for any sequence of numbers $\{y_t\}$ that satisfy $(1+r)^{-t}y_t \rightarrow 0$ as $t \rightarrow \infty$, then

$$0 = y_0 + (1+r)^{-1}[y_1 - (1+r)y_0] + (1+r)^{-2}[y_2 - (1+r)y_1] + \ldots \tag{2}$$

and, therefore, by combining equations (1) and (2),

$$P_0 = y_0 + \sum_{t=1}^{\infty}(1+r)^{-t}(y_t + d_t - (1+r)y_{t-1}), \tag{3}$$

where y_t can be any number that satisfies condition (2). This is a general formula for any valuation model that is derived from (1).[1] For example, if y_t equals 0, then (3) transforms to the dividend discount model (2). If y_t equals book value per share b_t, then (3) transforms instead to the residual income model

$$P_0 = b_0 + \sum_{t=1}^{\infty}(1+r)^{-t}(e_t - r \cdot b_{t-1}). \tag{4}$$

On the other hand, if y_t is capitalized expected earnings,[2] where

$$y_t = \frac{e_{t+1}}{r}, \quad t = 0,1,2,\ldots,$$

then condition (2) still holds but (3) transforms to the pricing model that informs the analysis in this paper:

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[1] For a detailed presentation of the unified valuation framework presented here, see also Gode and Ohlson (2006).

[2] The focus on capitalized expected earnings is consistent with Miller and Modigliani (1961), who suggest that equity values are determined by the earnings power of the firm's assets and its investment policy, and not by how the earnings are distributed.

$$P_0 = \frac{e_1}{r} + \sum_{t=1}^{\infty} (1+r)^{-t} \cdot z_t, \tag{5}$$

where $z_t = \frac{1}{r}[e_{t+1} + r \cdot d_t - (1+r)e_t], \quad t = 1,2,\ldots$

The z sequence represents capitalized expected abnormal earnings, that is the surplus over the normal earnings expected from the reinvestment of the previous period's earnings. In this formulation, the dividend irrelevancy property is satisfied by adding the term $r \cdot d_t$ to represent the foregone investment opportunity at the cost of capital r of having paid dividends d_t. Assuming that abnormal earnings grow in time at a rate $(1 + g)$, where $r > g \geq 0$, then (5) can be summarized as the abnormal earnings growth model, as follows:

$$P_0 = \left[\frac{e_1}{r} + \frac{e_2 + r \cdot d_1 - (1+r)e_1}{r(r-g)}\right]. \tag{6}$$

Based on (6), Easton (2004) argues that, if the forecast of next period's accounting earnings is equal to the equilibrium economic income (the product of the expected rate of return and the beginning of period price), accounting earnings are sufficient for valuation by definition, and also that the forward earnings yield is equal to the cost of equity. However, if e_1 does not equal economic income (as is mostly likely to happen, due to the conservative nature of accounting systems which defer the recognition of positive value shocks), then valuation based on accounting earnings requires forecasts beyond the next period.[3] Therefore, as made clear by Easton, the abnormal earnings growth in (6) $\frac{e_2 + r \cdot d_1 - (1+r)e_1}{r(r-g)}$ reflects the fact that differences between accounting earnings and economic income in any one period must be captured in the accounting earnings of other periods.

Multiplying both sides of equation (6) by the cost of capital, it is evident that the difference between the equilibrium economic income $r \cdot P_0$ and accounting earnings e_1 is determined by both the short-term growth in accounting earnings and the long-term growth in abnormal earnings, as follows:

$$r \cdot P_0 = e_1 + \frac{e_2 + r \cdot d_1 - (1+r)e_1}{(r-g)}. \tag{7}$$

While abnormal earnings grow at the long-term rate g, short-term growth in earnings is incorporated as the change from e_1 to e_2, adjusted for the previous period's retained earnings reinvestment. Although the latter suggests that dividend policy is irrelevant in the short term, equation (7) implies nevertheless that, given a sufficiently generous dividend policy, $e_t/e_{t-1} \rightarrow 1 + g$ as $t \rightarrow \infty$.[4] In other words, as Ohlson and Juettner-Nauroth (2005) show, the growth in accounting earnings decays in the long term towards the abnormal earnings growth rate g.

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[3] See Pope and Walker (1999) and Beaver and Ryan (2005) for a more thorough analysis of accounting conservatism. The difference between economic and accounting earnings stems from under-recognized positive value shocks, which are the source of expected accounting earnings growth.

ACCOUNTING DIVERSITY AND THE FORWARD EARNINGS YIELD

Equation (7) scaled by P_0 shows that the forward earnings yield e_1/P_0 will consist of the cost of equity capital, that is, the risk free rate r_f plus the risk premium $r - r_f$, less the (discounted) abnormal earnings yield, as follows:

$$\frac{e_1}{P_0} = r_f + (r - r_f) - \frac{(e_2 + r{\cdot}d_1 - (1 + r)e_1)/(r - g)}{P_0}. \tag{8}$$

Equation (8) shows that any cross-country variation in the forward earnings yield must be induced by three factors—the variation in country-specific risk-free rates, the variation in risk premia and the variation in the abnormal earnings yield, where the latter corrects the initial understatement of e_1 when accounting earnings are less than economic income.

In integrated financial markets, risk is likely to be priced homogeneously, as market mechanisms are more able to eliminate pricing differences through arbitrage. Thus, integrated financial markets are likely to be characterized by little variation in country-specific risk-free rates and risk premia, if sector effects remain constant across the countries involved. This is not likely to happen with respect to the forward earnings yield as long as accounting is not harmonized, or to be more precise, when there are still systematic differences across countries in the recognition of value shocks in accounting earnings.

Recent research has shown that different accounting systems bring about different speeds of recognition of value shocks in accounting earnings, leading to country-specific variability in the extent to which accounting earnings differ from economic earnings.[5] Based on equation (7), which expresses the difference between economic income and accounting earnings in terms of the abnormal earnings yield, our proposal is that variability in the speed of recognition of value shocks in accounting earnings induces significant country variation in the abnormal earnings yield.[6]

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[4] A sufficiently generous dividend policy would be a payout ratio that exceeds $(r - g)/r$. In the long term, it can be expected that, as the competitive advantage of the firm fades away, it would be reasonable to assume an almost full payout policy as it is implausible that earnings will be re-invested in the firm for ever. Consistent with the development of these arguments, the growth rate g is assumed in Ohlson and Juettner-Nauroth (2005) to approximate an economy-wide growth rate.

[5] See Ball *et al.* (2001), Giner and Rees (2001), García Lara and Mora (2004) and Raonic *et al.* (2004) for empirical evidence on the varying speed of value shock recognition in accounting earnings internationally.

[6] Note that, under converging economies and integrated markets, the country-specific variation in r and g should not influence country-specific variation in the abnormal yield. In the context of (8), this variation is likely to be driven mostly by abnormal earnings at time $t = 2$ (which is dividend policy irrelevant, and therefore country-specific factors in dividend policy should also be of no consequence). Ideally, an examination of abnormal earnings at time $t \geq 3$ would provide further insight into the way in which accounting earnings catch up with economic earnings in different countries and a better assessment of country variation at different points on the forecast horizon.

In contrast to the diversity in accounting rules and regulations that has held sway over European markets until recently, the new phase of standardization that is currently under way is based on the adoption of International Financial Reporting Standards by all listed companies in the EU from 2005 onwards. In principle, this should lead to similarity in the recognition of value shocks when the circumstances in which firms operate are the same. This would be the case, for example, if firms operate in the same industry, even though they may be registered in different jurisdictions. Thus, when accounting is harmonized and financial markets are integrated, the variation in the earnings multiple as described in (8) would be attributed to sector effects in both the risk premium and abnormal earnings yield, and country effects would be insignificant. Furthermore, earnings multiples would be directly comparable across countries, and such comparability would only require knowledge of industry-specific practices with respect to the recognition of value shocks in accounting earnings.[7]

RESEARCH DESIGN

The influence of harmonization is examined by modelling systematic effects in the forward earnings yield and its components that were described in equation (8). More specifically, the firm panel data are cross-categorized by country and sector in order to assess the relevant influence of these factors on the forward earnings yield, the risk premium and the abnormal earnings yield.[8] The preferred regression approach is one that allows for observations that are independent across groups but not within groups as this provides a statistical test for the significance of country and sector effects that is robust with respect to correlation within panels. The regression is estimated as

$$EP_i = \mu + \alpha_s + \beta_c + \gamma_t + MC_i + e_i, \tag{9}$$

where EP_i denotes the forward earnings yield for firm i, and where μ is the average earnings multiple across all firms and all years, with sector effects α_s, country effects β_c and time effects γ_t. Market capitalization MC_i is also included in the model as a covariate that controls for size effects.

The same panel data structure is employed to assess country and sector effects in the risk premium, that is to say with $r - r_f$ as the dependent variable in (9) instead of *EP*. Assuming that there is little variation in risk free rates, which has been the case in Europe in recent years, the main driver for systematic variation in the cost of capital would be country effects in the risk premium. Evidence that risk premia have converged is provided when the β_c in (9) is jointly insignificant after controlling for sector effects.[9] It is worth noting also that, if the cross-country variation in earnings multiples remains significant even when the risk premia have converged, this could imply that accounting diversity is not an impediment to financial market integration. To the extent that financial market integration coincides with economic convergence, there should be less systematic variation in the abnormal earnings yield. Substituting the abnormal earnings yield as the dependent variable in (9) instead of *EP*, the joint significance of β_c is expected to decrease although it will not be removed entirely while accounting harmonization remains incomplete.

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[7] Land and Lang (2002) examine cross-country differences in trailing earnings multiples, finding that they have become more similar over time. However, as Yee (2004) explains, the forward earnings which are employed in the present study demand less of accrual accounting than trailing earnings, and are more accurate equity valuation attributes.

[8] Estimation of the implied cost of equity capital and risk premia in the context of the Ohlson–Juettner-Nauroth (2005) model has already been reported in the accounting research literature, the estimation being substantiated by reasonable association with various risk proxies—see Gode and Mohanram (2003) and Botosan and Plumlee (2005). The cost of equity capital is also implied by other equity valuation models, and may be estimated accordingly. The research design in this paper is developed from the analysis in equations (6)–(8), this particular model being particularly appropriate for international comparison as it is not subject to dirty surplus biases—see Chen *et al.* (2004) for a discussion of the impact of dirty surplus accounting on the implied cost of capital.

Overall, it is expected that, given the degree of European financial market integration in recent years, cross-country variation in the forward earnings yield is likely to be driven to a great extent by the remaining constraints on accounting harmonization that are reflected in systematic differences across jurisdictions in the rate of recognition of economic income.

THE USE OF ANALYSTS' FORECASTS AS A PROXY FOR EARNINGS EXPECTATIONS

An important issue underlying the estimation of (9) is that investors' expectations are unobservable, and analysts' forecasts are used instead as a proxy. The main body of literature on analysts' forecasts shows them to be both biased and inaccurate. However, more recent advances show that the evidence on inaccuracy is largely due to earnings' management practices rather than to analysts' own irrationality (Abarbanell and Lehavy, 2003). Basu and Markov (2004) also reject the prior evidence on analysts' irrationality, explaining that the tests first reported in the study by De Bont and Thaler (1990) relied crucially on the nature of the forecast error that analysts aim to minimize.[10] On the other hand, Helbok and Walker (2004) argue that analysts are aware of the conservative nature of reported earnings and its influence on future earnings. They show that analysts revise (a) current period forecasts to reflect value shocks in an asymmetric manner, and (b) one-period ahead forecasts to account for the reversal in the over/under recognition of current news in reported earnings. Consequently, earnings forecasts that are produced at the time of the announcement of previous year earnings are likely to appear as unbiased when value shocks during the current fiscal year are positive (because positive shocks are hardly recognized in the current year), and optimistic when the news during the year is negative (because negative value shocks are recognized to a greater extent than positive shocks).

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[9] In their analysis of equity market returns in Europe, Adjaouté and Danthine (2004) show a diminishing role for geographical diversification as financial integration has deepened, and an increasing role for industrial diversification. In this respect, therefore, sector effects are expected to determine the implied cost of equity capital to an extent that is greater than country effects.

[10] Other research shows that analyst job turnover is associated with the mean absolute error of their forecasts (see Mikhail *et al.*, 1999; Hong and Kubik, 2003). With respect to analysts' incentives to generate business by means of optimistic forecasts, Irvine (2004) shows that individual analysts' forecast errors are not associated with increased trading by brokerage firms; instead, it is positive stock recommendations that generate trading commissions. Lin and McNichols (1998) find no evidence that affiliated analysts' earnings forecasts, either for the current year or for one year ahead, exhibit greater optimism than do unaffiliated analysts' forecasts. However, both Lin and McNichols and Dechow *et al.* (2000) report greater optimism with respect to long-term earnings growth, which is more consistent with optimistic recommendations. The drawback in these studies, however, is that the association between affiliated analysts and optimism is observed under the special circumstances of an equity offering, where substantial underwriting fees are involved (see Dechow *et al.*, 2000, on the positive association of underwriting fees and optimism).

The second potential criticism with respect to the use of analysts' forecasts as proxies of earnings forecasts in the context of a comparison of local accounting regimes is that forecasts are based on adjusted reported earnings, and, as a result of this adjustment, they may not necessarily reflect international differences in accounting. Analysts' forecasts are indeed free of extraordinary items that could contribute to country variation in the earnings multiple. However, as these items are transitory, this does not affect the evidence produced here, which focuses on core earnings.[11]

ANALYSIS OF LOCAL GAAP REGIMES

The sample consists of firms reporting under their local GAAP, originating from sixteen European jurisdictions (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and U.K.). Not all of the countries involved are member states of the EU, but Norway and Switzerland are included due to their close economic ties with the rest of Europe. The period examined in the study is from 1994 to 2003, and the sample comprises both active firms at the census date and inactive firms that ceased operations during the period. It should be noted that, before 1994, coverage of analysts' forecasts for these markets was not representative, especially with respect to Ireland and Greece. Two sub-periods are taken into consideration in the analysis, as events suggest that the effects of financial integration are likely to have accelerated since 2000.

Annual data on market capitalization, the dividend payout ratio, and the book to market ratio are drawn from the Worldscope database in Thomson Financial. The dividend payout ratio is averaged over the three years prior to the relevant point estimates and then multiplied by the earnings expectation one year ahead to obtain an estimate of the forthcoming year's expected dividends. Earnings expectations are proxied by IBES median forecasts. An important issue that arises when combining data from various databases concerns the different adjustment factors employed to render earnings per share and prices comparable over time, mostly by adjusting for capital issues and stock splits. To circumvent this problem, earnings per share forecasts in IBES are multiplied by the number of shares provided in IBES and then divided by market capitalization to calculate *EP*.

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[11] It should be noted that the reported earnings figure is not a good proxy for earnings expectations since it includes value shocks that are not relevant to the current price. The extent to which we still observe country variation, even with smoothed earnings estimates, implies that sophisticated market participants will perceive accounting in the European market as not yet fully harmonized.

The sample is restricted to firms that report with a December year end. As at the end of December, the current forecast is for the accounting year ending on that date. The model requires earnings forecasts for the year following the current forecast and for the year after that. For these predictions of forthcoming earnings, the median of December forecasts is employed for each of the two accounting years ending twelve months and twenty-four months later. Appropriate controls have been taken to ensure that the forecasts satisfy the twelve and twenty-four months year end. Furthermore, firms whose one year ahead earnings forecast and growth is negative are excluded since it is possible neither to reinvest negative earnings nor to perpetuate negative earnings growth.[12] For the primary analysis, these specifications yielded the cost of equity for 11,395 firm-year observations that are designated by Worldscope as reporting under local GAAP.[13]

Finally, in order to infer the cost of equity capital from earning expectations in analysts' forecasts, the present study employs the Ohlson and Juettner-Nauroth (2005) pricing methodology in (6), and for the parameter g, which represents an economy-wide growth factor, we make three different assumptions in order to examine the sensitivity of our inferences to the growth rates employed in the estimation of the implied cost of capital. First, g is approximated by the risk free rate, and second by expected inflation. In the latter case, Gode and Mohanram (2003) suggest that an approximation can be obtained by deducting the long-term real growth of the economy (about 3 per cent in the U.S.) from the risk free rate, a method adopted by Chen *et al.* (2004) in an international context. This paper, however, as in Hail and Leuz (2006), bases the second measure on the Consumer Price Index, and more specifically the average of the two years ahead annual CPI growth rate. In the third case, the hypotheses are tested under the assumption that $g = 0$. Risk free rates (i.e., the ten-year government bond yield) and CPI data are extracted from Datastream.

Estimates of the abnormal earnings yield and the risk premium under these three assumptions are presented on a country, sector and yearly basis in Table 1, together with details of the risk free rate and the forward earnings yield. The abnormal earnings yield represents the expected earnings growth that is priced in the earnings multiple. Thus, low earnings multiples due to conservatism should

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[12] A potential remedy to this limitation is to replace the short-term growth in earnings with the average growth in the medium term. This strategy, however, would compromise considerably the representation of smaller firms and those from smaller markets.

[13] Out of 16,080 firm-year observations that satisfied the December year-end criterion, with earnings forecasts available for both one and two years ahead, together with the necessary information on the respective number of shares and on whether the firm was reporting under either local, IAS or U.S. GAAP, 759 were deleted because earnings one year ahead was negative. A further 1,336 were deleted because the change in earnings between one and two years ahead was negative. With respect to the firm-years under local GAAP, out of the remaining 12,462, another 1,067 observations were deleted as data either were not available on Worldscope, or a computation of the cost of capital was impossible. As to the IAS and U.S. GAAP, samples vary depending on the research design of the test where these observations are employed.

TABLE 1

FORWARD EARNINGS YIELD AND ITS COMPONENTS

Panel A: Medians by country

Country	Number of observations	Forward earnings yield	Risk free rate	Long term growth = government bond yield		Long term growth = future inflation		Long term growth = 0	
				Risk premium	Abnormal earnings yield	Risk premium	Abnormal earnings yield	Risk premium	Abnormal earnings yield
Austria	157	0.0680	0.0586	0.0776	0.0685	0.0671	0.0504	0.0639	0.0445
Belgium	431	0.0703	0.0528	0.0806	0.0613	0.0719	0.0502	0.0676	0.0456
Denmark	480	0.0737	0.0550	0.0743	0.0628	0.0669	0.0509	0.0629	0.0441
Finland	584	0.0682	0.0514	0.0966	0.0759	0.0833	0.0607	0.0809	0.0578
France	1,855	0.0649	0.0504	0.0800	0.0664	0.0693	0.0540	0.0657	0.0493
Germany	826	0.0548	0.0520	0.0734	0.0711	0.0604	0.0552	0.0568	0.0509
Greece	300	0.0585	0.0595	0.0806	0.0898	0.0662	0.0766	0.0566	0.0642
Ireland	99	0.0847	0.0507	0.0779	0.0426	0.0765	0.0395	0.0717	0.0311
Italy	860	0.0574	0.0530	0.0789	0.0779	0.0683	0.0638	0.0604	0.0560
Netherlands	950	0.0885	0.0528	0.0730	0.0421	0.0684	0.0350	0.0668	0.0295
Norway	541	0.0713	0.0601	0.0965	0.0811	0.0848	0.0677	0.0805	0.0618
Portugal	228	0.0624	0.0528	0.0782	0.0719	0.0675	0.0602	0.0587	0.0523
Spain	664	0.0733	0.0520	0.0742	0.0601	0.0644	0.0499	0.0584	0.0426
Sweden	931	0.0605	0.0524	0.0792	0.0777	0.0663	0.0599	0.0631	0.0562
Switzerland	368	0.0648	0.0355	0.0845	0.0519	0.0778	0.0433	0.0767	0.0417
U.K.	2,121	0.0748	0.0539	0.0706	0.0568	0.0618	0.0459	0.0568	0.0399

Panel B: Medians by sector

Sector	Number of observations	Forward earnings yield	Risk free rate	Long term growth = government bond yield		Long term growth = future inflation		Long term growth = 0	
				Risk premium	Abnormal earnings yield	Risk premium	Abnormal earnings yield	Risk premium	Abnormal earnings yield
Basic industries	1,057	0.0812	0.0536	0.0986	0.0726	0.0868	0.0594	0.0833	0.0552
Capital goods	2,619	0.0779	0.0530	0.0824	0.0617	0.0730	0.0496	0.0699	0.0445
Consumer durables	300	0.0919	0.0528	0.0941	0.0569	0.0843	0.0463	0.0821	0.0430
Consumer non-durables	1,081	0.0733	0.0524	0.0736	0.0544	0.0649	0.0438	0.0618	0.0386
Consumer services	1,995	0.0595	0.0520	0.0716	0.0669	0.0607	0.0544	0.0558	0.0482
Energy	313	0.0701	0.0533	0.0888	0.0700	0.0770	0.0572	0.0729	0.0509
Finance	2,021	0.0671	0.0527	0.0678	0.0571	0.0591	0.0453	0.0549	0.0398
Health care	426	0.0501	0.0505	0.0602	0.0635	0.0479	0.0502	0.0430	0.0440
Public Utilities	343	0.0521	0.0530	0.0558	0.0631	0.0445	0.0475	0.0399	0.0409
Technology	822	0.0473	0.0492	0.0946	0.0934	0.0830	0.0800	0.0772	0.0729
Transportation	418	0.0767	0.0550	0.0948	0.0706	0.0827	0.0577	0.0779	0.0531

Table 1

(continued)

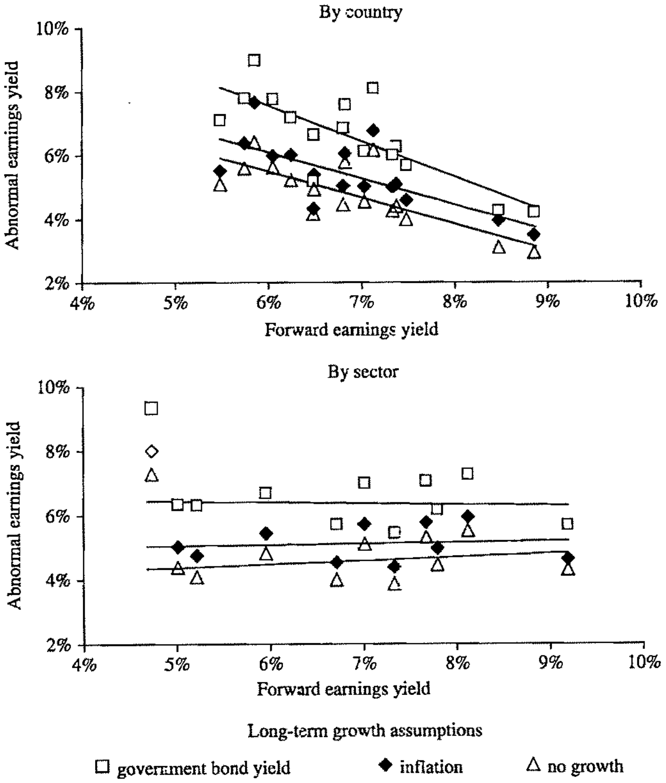
Panel C: Medians by year

Year	Number of observations	Forward earnings yield	Risk free rate	Long term growth = government bond yield		Long term growth = future inflation		Long term growth = 0	
				Risk premium	Abnormal earnings yield	Risk premium	Abnormal earnings yield	Risk premium	Abnormal earnings yield
1994	870	0.0678	0.0865	0.0711	0.0902	0.0485	0.0657	0.0426	0.0584
1995	977	0.0769	0.0732	0.0718	0.0682	0.0579	0.0503	0.0535	0.0448
1996	1,172	0.0659	0.0634	0.0652	0.0677	0.0520	0.0513	0.0474	0.0457
1997	1,305	0.0614	0.0558	0.0654	0.0593	0.0544	0.0451	0.0511	0.0413
1998	1,349	0.0647	0.0408	0.0762	0.0527	0.0707	0.0455	0.0683	0.0405
1999	1,203	0.0632	0.0537	0.0658	0.0620	0.0588	0.0507	0.0532	0.0431
2000	1,278	0.0679	0.0504	0.0801	0.0632	0.0726	0.0528	0.0680	0.0463
2001	1,149	0.0708	0.0490	0.0897	0.0679	0.0818	0.0594	0.0774	0.0533
2002	1,063	0.0862	0.0445	0.1119	0.0698	0.1057	0.0623	0.1008	0.0568
2003	1,029	0.0670	0.0435	0.0859	0.0639	0.0782	0.0541	0.0742	0.0500

also be characterized by higher abnormal earnings yield. This is the case for Germany and Italy, for example, which have the lowest earnings multiples among the sixteen countries covered by Panel A (0.0543 for Germany and 0.0574 for Italy), but also a relatively high level of abnormal earnings yield (e.g., 0.0711 and 0.0779, when government bond yield is taken as the proxy for long-term growth). On the other hand, the earnings multiples in Ireland and the Netherlands are the two highest in the sample (0.0847 for Ireland and 0.0885 for the Netherlands), while the respective abnormal earnings yields are the lowest under all growth assumptions (e.g., 0.0426 and 0.0421 when g is set at the government bond yield). The trade-off between the earnings multiple and the abnormal earnings yield at the country level is evident in Figure 1, which illustrates the inverse relationship graphically.

FIGURE 1

ABNORMAL EARNINGS AND FORWARD EARNINGS



Note: The indicative slopes have been estimated from the country and sector medians reported in Table 2 for the forward earnings yield and the abnormal earnings yield under each of the three long-term growth assumptions. The fitted lines by sector exclude technology, given the unusual circumstances surrounding the internet bubble in the 1990s, the high abnormal earnings yield in that sector being evident at the top left of the graph.

On the other hand, this trade-off does not seem to be present at the industry level, as the descriptive statistics in Panel B of Table 1 reveal in all sectors except one.[14] The absence of such effects at the sector level is also illustrated in Figure 1, thus supporting the hypothesis that the differences in degrees of value recognition in the earnings multiple and the abnormal earnings yield seem to be driven primarily by accounting diversity across countries rather than by industry specific characteristics.

Finally, it can be seen in Panel C of Table 1 that the trade-off between earnings multiples and abnormal earnings is not present on a yearly basis, since the country effects (which are considered to drive this) and the sector effects are aggregated.[15] Perhaps the most important evidence in Panel C is the decreasing risk free rate, the long-term government bond yield falling as one would expect in integrating financial markets.[16]

Empirical Results

The first set of tests examines the significance of sector and country effects in the earnings multiple. These tests are conducted separately for the sub-periods 1994–2000 and 2001–03 in order to capture any time variation that could be attributed to the increased integration of European financial markets, particularly the partial integration stemming from the introduction of a common currency in a number of the countries involved.

In view of recent evidence of a diminishing role for country factors in European financial markets (Adjaouté and Danthine, 2004), it is expected that country effects will add relatively little explanatory power over and above the sector effect. The R-squareds reported in Table 2 show that sector effects alone account for 16.12 per cent of the variation in the forward earnings yield in the first period and 13.76 per cent in the second period, the incremental explanatory power that arises from adding the country effects dropping between periods from 4.57 per cent to 3.69 per cent. Given the lower joint significance of country effects after 2000 (F test: 7.39 versus 16.68), and the lower joint significance of country effects compared to sector effects (F test: 16.68 versus 37.29 through 2000 and 7.39 versus 22.03 after 2000), this warrants further examination of the country and sector effects in the different components of the earnings multiples.

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[14] The exception is the technology sector, a special case which was greatly influenced by the internet bubble that started in the mid-1990s. At this time, investors and analysts may have expected more growth in perpetuity rather than in the immediate future and therefore would have incorporated a greater portion of the value driver in forecasted abnormal earnings growth than in forward earnings.

[15] It can be seen that the number of observations falls in later years. This is explained by the increasing number of firms that have switched to IAS or U.S. GAAP, especially in Germany after the introduction of the New Market.

[16] The standard deviation of the risk-free rate in the present sample decreases from 1994 (0.0163) to 2003 (0.0039).

TABLE 2

COUNTRY AND SECTOR VARIATION

	Degrees of freedom	Forward earnings yield	Long term growth = government bond yield		Long term growth = future inflation		Long term growth = 0	
			Risk premium	Abnormal earnings yield	Risk premium	Abnormal earnings yield	Risk premium	Abnormal earnings yield
1994–2000								
R^2								
Sector effects α_s		16.12%	16.52%	3.15%	18.03%	4.17%	18.81%	4.60%
Country effects β_c		15.34%	14.61%	6.10%	15.78%	5.76%	16.56%	6.08%
Sector effects α_s + country effects β_c		20.69%	17.56%	7.87%	19.05%	7.76%	20.01%	8.03%
Wald *F*-test								
Joint country effects test	*F*(15,2456)	16.68	4.05	18.10	3.77	13.36	4.82	12.81
	p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Joint sector effects test	*F*(10,2456)	37.29	16.77	7.89	19.08	8.48	20.38	8.30
	p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2001–03								
R^2								
Sector effects α_s		13.76%	20.76%	11.66%	21.01%	11.76%	21.82%	12.42%
Country effects β_c		10.42%	19.35%	10.49%	19.64%	10.31%	20.34%	11.17%
Sector effects α_s + country effects β_c		17.45%	21.32%	14.40%	21.65%	13.94%	22.41%	14.61%
Wald *F*-test								
Joint country effects test	*F*(15,2456)	7.39	1.30	5.36	1.26	4.30	1.21	4.47
	p-value	<0.001	0.254	<0.001	0.220	<0.001	0.197	<0.001
Joint sector effects test	*F*(10,2456)	22.03	5.07	11.37	5.27	10.43	5.53	9.91
	p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Note: The estimated model $\mu + \alpha_s + \beta_c + \gamma_t + MC_i + e_i$ includes α_s sector effects, β_c country effects and γ_t time effects. A size control (MC_i, the log of market capitalization in U.S.$) is also included as a covariate to account for scale effects, and the estimated coefficient ranged between −0.0041 and −0.0175. The country and sector effects are not shown in detail, as their computation in STATA's *cluster* regression is with respect to one particular country or sector that is aliased arbitrarily in the estimation procedure. The joint significance test for the equality of country or sector means allows for the fact that observations are not independent within the same firm, and the appropriate test is therefore a Wald test, with an *F* distribution. The variance-covariance matrix provides diagnostics at the firm level, and thus the number of degrees of freedom reflects the number of firms and not the number of firm-year observations.

A similar analysis of sector and country effects in the estimated risk premium and in the abnormal earnings yield is also presented in Table 2, under each of the three growth assumptions discussed earlier. With regard to the risk premium, sector effects appear to explain most of the variation, and country effects add very little to the overall explanatory power (the incremental R^2 through 2000 is 1.04%, 1.02% and 1.20% assuming long-term growth respectively at the government bond rate, the inflation rate and at zero, and after 2000 it is 0.56%, 0.64% and 0.59%). The main insight is that, having established that there is significant country variation at all times in the earnings multiple, that is, that accounting diversity remains present throughout, the risk premia on the other hand appear to be unaffected by accounting diversity, especially in the later years. In fact, country effects have no joint significance in the risk premium after 2000 (*F* test: 1.30, 1.26 and 1.21 under each of the three growth assumptions). Bearing in mind that the estimated risk premia are constructed by means of accounting earnings expectations, this lends strong support to the inferences with respect to accounting harmonization. Whatever country-driven variation there might be in accounting earnings expectations, its influence appears to have been mitigated, as it should be if accounting diversity has few economic consequences. This result corroborates the general inference drawn from Table 1, and illustrated by Figure 1, that accounting diversity drives the cross-country differences in the trade-off between risk premium components. Here, it is evident from Table 2 that cross-country differences indeed disappear once accounting diversity has been minimized.

Finally, since we do not expect significant country effects in risk premia within relatively integrated markets, and this study confirms that they no longer have explanatory power beyond sector effects, then it is consequent that the persistent country effects detected in the earnings multiples are mostly driven by international differences in the rate of recognition of economic income. Such differences are not expected to disappear until there is full harmonization between local accounting regimes in Europe. This inference is also supported by the analysis of the abnormal earnings yield, where the lower joint significance in the second period (e.g., *F* test when growth is set at the government bond yield: 5.36 versus 18.10) suggests that country effects in abnormal earnings yield, although declining, have not been eliminated, reflecting the earlier results with respect to the forward earnings yield.

THE ECONOMIC CONSEQUENCES OF ACCOUNTING TRANSITION

International Financial Reporting Standards and U.S. GAAP are commonly acknowledged to impose a greater level of disclosure than is generally required by other sets of accounting rules and regulations (such is the argument for Germany, for example—see Leuz, 2003). Recently, national regulatory bodies in Europe have been moving their own rules towards IFRS in order to enable the more general transition in 2005. Moreover, certain firms in Europe pre-empted the transition by reporting already under IFRS (and previously under IAS) and, in some cases, under U.S. GAAP.

It is argued here that the main costs of a transition to IFRS or U.S. GAAP are firm specific and are associated with the level and type of disclosure before switching. The greater the disclosure before the transition, and the closer the accounting policies to those set out in IFRS or U.S. GAAP, the easier it is for market participants to connect the past with the future and hence to be able to unravel the accounting impact on future cash flows. Accounting standardization *per se* does not have economic consequences in integrated financial markets, as shown in the previous section. Thus, the transition to another set of accounting standards is expected to have economic consequences insofar as prior disclosure is not sufficient to inform market participants about the impact of accounting change. However, the costs involved are likely to be temporary and to dissipate following transition, with the economic consequences for any firm being more pronounced in the early stages of adoption, although this would all depend not only on disclosure levels but also on the set of standards that is adopted. As Barth *et al.* (1999) demonstrate, adherence to a set of increased visibility GAAP can lead to market prices that more accurately reflect true value and a reduced cost of capital.

With respect to the estimation of the effect of standard switching, the methodology followed is similar to that described above for the examination of local GAAP effects. We focus now, however, on the economic consequences of the transition by examining the risk premium associated with standard switching and its subsequent evolution, conditional on the prior disclosure level as represented by the firm's market capitalization before the transition.[17]

With respect to the risk premium $(r - r_f)$, the following regression is run:

$$(r - r_f)_i = \mu + \alpha_s + \beta_c + \boldsymbol{\delta}' \begin{bmatrix} D_{GAAP} \\ MC_i \\ D_{GAAP} \times MC_i \end{bmatrix} + \gamma_t + e_i, \qquad (10)$$

where D_{GAAP} is a dummy variable that distinguishes whether or not the accounting standards used by the firm in drawing up its financial statements are local or international (IAS/IFRS, U.S. GAAP), taking the value of zero for those years in which the firm reports under the local rules and the value of one otherwise. The dummy variable is interacted with the prior level of disclosure, proxied by the firm's market capitalization MC_i, in order to control for the extent of pre-disclosure that prepared the ground for standard switching, with the respective main effects and interaction effects given by the inverse of the vector of coefficients $\boldsymbol{\delta}$.[18] The sector, country and time-period controls are also important in this respect, as evidence on the economic consequences of standard switching might be biased by particular sectors, or by adopters of international standards that originate in local GAAP regimes which are less harmonized internationally, or just because most of the transitions have taken place at a point in time when the risk premium is elevated.

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[17] Market capitalization is kept constant across years for each firm, at a value corresponding to the firm's market capitalization in the year immediately prior to the transition. The idea of expressing pre-disclosure (i.e., voluntary information release) as a function of market capitalization dates back to Atiase (1985). More recently, Leuz and Verrechia (2000) and Leuz (2003) also argue that larger firms tend to disclose more, and Cuijpers and Buijink (2005) employ market capitalization as a proxy for firm level disclosure in a study of voluntary switching to foreign GAAP.

[18] Vectors $\boldsymbol{\delta}$ and $\boldsymbol{\lambda}$ in equations (10) and (11) correspond to coefficients δ_n in $\begin{bmatrix} \delta_1 \\ \delta_2 \\ \delta_3 \end{bmatrix}$ and λ_n in $\begin{bmatrix} \lambda_1 \\ \lambda_2 \\ \lambda_3 \end{bmatrix}$.

A further test examines whether or not the economic cost of transition is a transitory phenomenon that has a more pronounced effect in the initial period of application of the new set of standards. For this purpose, L_{GAAP} represents the length of the adoption period, that is, the number of years during which the firm's financial statements have been prepared in accordance with IAS/IFRS or U.S. GAAP. As above, this variable is also interacted with the prior level of disclosure, proxied by the firm's market capitalization MC_i, and in this case the respective main effects and interaction effects are given by the inverse of the vector of coefficients λ, as follows:

$$(r - r_f)_i = \mu + \alpha_s + \beta_c + \lambda' \begin{bmatrix} L_{GAAP} \\ MC_i \\ L_{GAAP} \times MC_i \end{bmatrix} + \gamma_t + e_i. \qquad (11)$$

The IFRS sample (107 firms) comprises mainly German, Swiss and Austrian companies but also others from Belgium, Denmark, Spain, Finland, Greece, Italy and Portugal, all of which have switched to IFRS (or previously IAS) since 1995.[19] The U.S. GAAP sample comprises only forty-eight firms, the majority of which originate in Germany, with others from Austria, Belgium, Switzerland, Spain, Greece, Italy and the Netherlands. The full sample includes firm-year observations for which an estimate of the cost of equity is feasible, for those firms for which there is also at least one observation of the cost of equity when they were reporting under their local GAAP. These strict criteria have generated 712 firm-year observations for firms that opted to report under IFRS and 243 firm-year observations under U.S. GAAP, including cost of earnings multiples and cost of capital estimates before and after the switch.

Empirical Results

Due to the sampling procedure, some consideration of the behaviour of the risk premium in each firm series is required in the estimation. Therefore, a cross-sectional time series linear model is fitted using feasible generalized least squares. This allows estimation in the presence of AR(1) autocorrelation within panels and cross-sectional correlation across panels.

Table 3, Panel A, presents the empirical evidence concerning the adoption of international standards, as set out in equation (10). With respect to the firms that opt for IFRS, such adoption appears to entail significant costs as the risk premium

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[19] There are few cases where firms switched from IAS to local GAAP or to U.S. GAAP (not included).

TABLE 3

ECONOMIC CONSEQUENCES

Panel A: The economic consequences of accounting transition

$$(r - r_f)_i = \mu + \alpha_s + \beta_c + \delta' \begin{bmatrix} D_{GAAP} \\ MC_i \\ D_{GAAP} \times MC_i \end{bmatrix} + \gamma_t + e_i$$

	IFRS			U.S. GAAP		
	Coefficients	*z*-statistic	*p*-value	Coefficients	*z*-statistic	*p*-value
Constant	0.1355	7.85	<0.001	0.1809	6.46	<0.001
D_{GAAP}	0.0455	4.19	<0.001	0.0465	2.46	0.014
$D_{GAAP}MC_i$	−0.0049	−3.54	<0.001	−0.0038	−1.51	0.131
MC_i	−0.0047	−2.73	0.006	−0.0102	−4.11	<0.001
Number of observations	712			243		
Number of groups	107			48		
Wald test (chi-squared)	297.78***			2450.75***		

Panel B. The transitory nature of the economic consequences of transition

$$(r - r_f)_i = \mu + a_s + \beta_c + \lambda' \begin{bmatrix} L_{GAAP} \\ MC_i \\ L_{GAAP} \times MC_i \end{bmatrix} + \gamma_t + e_i$$

	IFRS			U.S. GAAP		
	Coefficients	*z*-statistic	*p*-value	Coefficients	*z*-statistic	*p*-value
Constant	0.2333	5.60	<0.001	0.0993	1.19	0.234
L_{GAAP}	−0.0130	−2.29	0.022	−0.0508	−5.05	<0.001
$L_{GAAP}MC_i$	0.0019	2.84	0.005	0.0010	1.07	0.284
MC_i	−0.0177	−8.19	<0.001	−0.0190	−6.02	<0.001
Number of observations	307			90		
Number of groups	81			27		
Wald test (chi-squared)	937.18***			3890.10***		

Note: $(r - r_f)_i$ is the risk premium of firm i (assuming no long term growth), α_s sector effects, β_c country effects and γ_t time effects. δ' and λ' are inverted vectors of parameters on: MC_i the log of the market capitalization of the i^{th} firm, D_{GAAP} a dummy variable that takes the value of 1 if a particular set of standards is followed and 0 otherwise, and L_{GAAP} the number of years during which the firm's financial statements have been prepared in accordance with those standards. The constant may be interpreted as the risk premium of a firm with minimum disclosure. The model is estimated by feasible generalized least squares regression in order to control for the presence heteroskedasticity. The Wald test statistic that is reported has a chi-squared distribution.

increases by an estimated 4.55 per cent (the δ coefficient on D_{GAAP} is significant at less than 0.1%).[20] This is especially so for smaller firms, as suggested by the negative sign on the $D_{GAAP} \times MC$ interaction of the adoption dummy with market capitalization. Conversely, it may be inferred that the switch to IFRS has been less costly for firms that were already extensive disclosers. With regard to U.S. GAAP, the estimated increase in the risk premium is at a similar level of 4.65 per cent, although this is only weakly significant (p-value: 0.014) and there is no evidence of an effect of pre-adoption disclosure. However, insofar as the adoption of U.S. GAAP may entail the use of a more visible set of standards and a commitment to greater disclosure, transition costs might fall quickly after the switch.[21] This issue is further examined by evaluating the impact of the length of experience with internationally recognized GAAP and, second, by means of a comparison of the impact of the disclosure effect on risk premia conditional on the set of standards employed.

The results in Panel B of Table 3 suggest that risk premia associated with IFRS adoption are likely to decline as the length of the period of application is extended, as suggested by the negative sign of the estimated λ coefficient on L_{GAAP} (albeit weakly significant with a p-value of 0.022).[22] This correction is especially pronounced for firms whose disclosure level before IFRS adoption was minimal, as suggested by the positive and significant coefficient on $L_{GAAP} \times MC$, the interaction between the length of the adoption period and market capitalization (p-value: 0.005). Note that these firms bear larger costs of transition overall, and combining the evidence reported in the two panels it now becomes clear that this result is likely to be driven primarily by the early years of IFRS adoption. On the other hand, this correction effect will be less pronounced for those firms that incurred lower costs in the first place.

With regard to U.S. GAAP, however, there is stronger evidence of a correction of the initial costs associated with adoption, which is suggested by the significantly negative λ coefficient on L_{GAAP} (p-value < 0.001). Nevertheless, contrary to the situation under IFRS, the level of pre-adoption disclosure appears to have no effect on the decrease in the risk premia after the adoption of U.S. GAAP, as suggested by the insignificant λ coefficient on the interaction between L_{GAAP} and MC (p-value: 0.284). The initial finding of (albeit weakly) significant costs associated with a switch to U.S. GAAP appears also to be driven by the first year of transition. Note the magnitudes of δD_{GAAP} and λL_{GAAP} are respectively 0.0465 and –0.0508, while the corresponding estimates under IFRS are 0.0455 and –0.0130, which implies that it takes longer for the initial transition costs to abate under IFRS.

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[20] Daske (2006) provides similar evidence on the occurrence of costs due to the transition to IFRS for German companies.

[21] Bushee and Leuz (2005) demonstrate that the imposition of stricter mandated disclosure is associated with significant costs for smaller firms that have not filed previously with SEC, turning some of them towards less regulated markets. On the other hand, previous experience with SEC has significant benefits in terms of a permanent increase in liquidity and positive stock returns.

[22] Note that, in Panel B of Table 3, the number of firms and firm-year observations is reduced with respect to Panel A. This is due both to the research design, which in this case takes into account only the sub-sample of firms that have switched to internationally recognized GAAP, and to the use of a feasible GLS regression that excludes firms with just one available firm-year observation. A similar GLS regression, which does not take into account the autocorrelation within the firm (while allowing for heteroskedasticity), yields qualitatively equivalent results based on the same number of firms as in Panel A.

The evidence in Table 3 suggests that, although there are costs associated with the transition to internationally recognized GAAP, these are likely to be transitory. The transitory nature of adoption costs is especially pronounced for firms characterized by minimal disclosure before their switch to IFRS, and for all firms that switch to U.S. GAAP regardless of their pre-adoption level of disclosure. It is possible that the enhanced visibility and transparency of U.S. GAAP ensures that transition costs fade out quickly, as shown in Panel B. This issue is further examined in the following section by associating levels of disclosure with risk premia after firms have switched to foreign GAAP.

TRANSPARENCY AND DISCLOSURE

The empirical evidence set out above suggests that extensive prior disclosure may decrease the costs of a switch to a new set of accounting standards in terms of the firm's risk premium. This finding is in line with evidence reported elsewhere of a negative relationship between disclosure and the cost of capital.[23] This is because financial transparency, and timely and adequate disclosure, facilitate the external monitoring of managers, reduce the risk of expropriation from shareholders, and therefore lower the expected rate of return that investors demand on their capital.[24] This study posits that, as capital markets become more integrated, country-specific factors will tend to lose their importance in explaining differences between firms in the cost of equity capital. As a result, investors will rely primarily on firm level disclosure. Moreover, a firm's commitment to better disclosure and greater financial transparency will reduce information asymmetries between insiders (managers or controlling shareholders) and outsiders (minority shareholders, creditors and other stakeholders). In particular, the adoption of internationally recognized reporting standards such as IFRS or U.S. GAAP will commit the firm to regimes that make it more difficult for insiders to conceal private control benefits from outsiders.[25] Whether the reduction in information asymmetry that lowers the rate of return required by equity capital providers is better secured by adoption of IFRS or U.S. GAAP is an empirical question. Consequently, this last section of the paper investigates the magnitude of the effect of firm level disclosure on the required rate of return in terms of the firm's risk premium conditional upon its choice between the two different sets of internationally recognized accounting standards.

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[23] Hail (2002) shows that firms which disclose more on a voluntary basis enjoy a lower cost of capital. Further evidence of this negative relationship is provided by Botosan and Plumlee (2002). Although public disclosure may remove uncertainty about the firm's earnings and reduce risk accordingly, this may be more than offset by increases in the cost of capital arising from more precise private information (Botosan *et al.*, 2004). Moreover, accounting restatements initiated by the firm's auditors, the regulatory authorities or the firm itself can lead to increases in the firm's cost of equity capital, which is consistent with lowering the perceived earnings quality of the firm and increasing investors' required rates of return (Hribar and Jenkins, 2004).

[24] At the country level, financial transparency is shown by Bushman *et al.* (2004) to be higher when there is a lower risk of actions by the state that influence the required rate of return in a negative manner. Further evidence on the incorporation of market and firm information into stock prices is given in Piotroski and Roulstone (2004), and the association between the disclosure of accounting information and corporate governance systems is considered in Bushman *et al.* (2004). Leuz *et al.* (2003) provide evidence that differences in earnings management across countries may be attributed to corporate governance mechanisms, as, in the absence of strong protection, insiders tend to use earnings management to protect their own interests by concealing firm performance from outsiders.

As a measure of firm level disclosure practices, we use the scores constructed in Standard and Poor's Financial Transparency and Disclosure (2002) survey. The survey focuses on a wide range of attributes and their coverage in key public documents released by companies. These attributes are grouped into three broad categories, concerning: (a) ownership structures and investor rights, (b) financial transparency and (c) board and management structure and process. These are further broken down into twelve sub-categories, and cover seventy-two different topics in total. A score of 1 is assigned to a firm for each attribute that is found to be present and 0 if otherwise. Panel A of Table 4 shows the median transparency and disclosure score across countries and sectors, and also with respect to the accounting standards adopted by the firms involved. These indicate a far wider range across countries (from 43.01 for Austria to 71.88 for the U.K.) than across sectors (from 64.89 for Basic Industries to 70.97 for Energy). Moreover, it can be seen that the financial transparency is no different on average for European firms adopting U.S. GAAP than for those firms that continued to report in accordance with local standards, while early IFRS adopters tend to have a lower score.[26]

The effect of firm level disclosure on the risk premium is tested using a similar methodology to that employed to examine accounting transition effects, as follows:

$$(r - r_f)_i = \mu + \alpha_s + \beta_c + \delta' \begin{bmatrix} D_{GAAP} \\ TD_i \\ D_{GAAP} \times TD_i \\ MC_i \end{bmatrix} + \gamma_t + e_i, \qquad (12)$$

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[25] While U.S. GAAP are often portrayed as the benchmark for high-quality standards and for providing relevant information to the capital markets (Levitt, 1998; McGregor, 1999), recent empirical research suggests that there is no evidence that U.S. GAAP result in higher information quality than IAS/IFRS. Rather, it has been demonstrated that both sets of standards reduce information asymmetries in capital markets equally well (and better compared to the local GAAP) once they are embedded in the same regulatory environment (Leuz, 2003).

[26] See: http://www2.standardandpoors.com/spf/pdf/fixedincome/Transparency_and_Disclosure_Study_Europe.pdf. Further details are given in Khanna *et al.* (2004), who suggest that Standard and Poor's Financial Transparency and Disclosure scores measure disclosure levels against an implicit U.S. rather than a global benchmark. It should be noted therefore that the scores measure the extent of convergence to U.S. disclosure practices rather than providing an absolute measure of disclosure quality.

where *TD* is a continuous variable that corresponds to a firm's transparency and disclosure score and D_{GAAP} is a dummy variable that distinguishes the set of accounting standards applied by the firm, taking the value of 1 if a particular set of standards is followed (local, IFRS or U.S. GAAP) and 0 otherwise. These two variables are further examined in order to measure the effect of disclosure conditional on the firm's choice of GAAP, and size is also included as a covariate. The relevant main effects and interaction effects are given by the inverse of the vector of coefficients $\boldsymbol{\delta}$. As previously, controls for sector, country, firm and time are also added to the model.

Empirical Results

Panel B of Table 4 sets out the results from regression (12) using the full set of controls. We find that the firm's disclosure scores individually increase the risk premium, as indicated by the positive δ coefficients on the variable *TD*, which are significant for local accounting standards (p-value = 0.025), IFRS (p-value < 0.001) and U.S. GAAP (p-value < 0.001). This finding corroborates the results reported in Table 3, suggesting that increased transparency adds to the risk premium and that disclosure at a higher standard is costly. However, the incremental effect of the firm's disclosure level on the risk premium varies depending on

TABLE 4

TRANSPARENCY AND DISCLOSURE

Panel A: Standard & Poor's financial transparency and disclosure scores by country and by sector

Country	*Median score*	*Sector*	*Median score*
Austria	43.01	Basic industries	64.89
Belgium	60.54	Capital goods	63.83
Denmark	60.00	Consumer durables	68.09
Finland	75.26	Consumer non-durables	61.70
France	69.52	Consumer services	63.27
Germany	54.88	Energy	70.97
Greece	68.04	Finance	64.89
Ireland	71.88	Health care	67.35
Italy	53.06	Public Utilities	64.95
Netherlands	62.89	Technology	67.78
Norway	49.46	Transportation	59.22
Portugal	54.26		
Spain	57.14	*GAAP Regime*	
Sweden	61.86	Local GAAP	63.75
Switzerland	63.92	U.S. GAAP	64.54
U.K.	71.88	IAS/IFRS	58.37

TABLE 4

(CONTINUED)

Panel B: Analysis of GAAP regimes

$$(r - r_f)_i = \mu + \alpha_s + \beta_c + \delta' \begin{bmatrix} D_{GAAP} \\ TD_i \\ D_{GAAP} \times TD_i \\ MC_i \end{bmatrix} + \gamma_t + e_i$$

	Local GAAP			IFRS			U.S. GAAP		
	Coefficients	*z*-statistic	*p*-value	Coefficients	*z*-statistic	*p*-value	Coefficients	*z*-statistic	*p*-value
Constant	0.1529	10.63	<0.001	0.1412	13.96	<0.001	0.1318	12.55	<0.001
D_{GAAP}	$\underline{-0.0251}$	–2.30	0.021	$\underline{0.0034}$	0.31	0.758	$\underline{0.1264}$	4.15	<0.001
	0.1278	11.93	<0.001	0.1446	10.22	<0.001	0.2582	8.07	<0.001
TD_i	0.0372	2.25	0.025	0.0661	9.80	<0.001	0.0691	10.63	<0.001
$D_{GAAP} \cdot TD_i$	$\underline{0.0315}$	1.83	0.067	$\underline{0.0021}$	0.11	0.909	$\underline{-0.1901}$	–4.09	<0.001
	0.0687	10.12	<0.001	0.0682	3.84	<0.001	–0.1210	–2.61	0.009
MC_i	–0.0112	–16.65	0.000	–0.0014	–16.68	0.000	–0.0013	–16.5	0.000
Number of observations	1294			1294			1294		
Number of groups	254			254			254		
Wald test (chi-squared)	1941.04			1943.67			1956.23		

Note: $(r - r_f)_i$ is the risk premium of firm i (assuming no long term growth), α_s sector effects, β_c country effects and γ_t time effects. δ' is an inverted vector of parameters on: MC_i the log of the market capitalization of the i^{th} firm, D_{GAAP} a dummy variable that takes the value of 1 if a particular set of standards is followed and 0 otherwise and TD_i the S&P transparency and disclosure score of firm i (scaled by 100, from 0 to 1). The constant may be interpreted as the risk premium of a firm with minimum disclosure. The full sample includes 1,294 firm-year observations for those firms for which there is at least one observation of the cost of equity when they were reporting under their local GAAP. The model is estimated by means of a feasible generalized least squares regression in order to control for the presence heteroskedasticity. The Wald test statistic that is reported has a chi-squared distribution.

whether a firm follows local standards, IFRS or U.S. GAAP. Following local accounting standards seems to be incrementally costly, as implied by the positive and significant δ coefficient (0.0315) on the interaction term $D_{GAAP} \times TD$. For firms that prepare their financial statements in accordance with IFRS, the coefficient on $D_{GAAP} \times TD$ is not significantly different from zero, implying that the fact that firms prepare their financial statements in accordance with IFRS neither increases nor reduces the costs of increased disclosure and transparency. On the contrary, for firms that have chosen to adopt U.S. GAAP, the total effect of disclosure is to reduce the risk premium, there being a negative and statistically significant interaction coefficient (–0.1901).[27] This result suggests that market participants are ready to pay a premium for firms that commit to more transparent disclosure in accordance with U.S. GAAP (i.e., by reducing the premium demanded for risk).[28] One possible explanation for this finding is that, in our sample, the majority of firms that adopt U.S. GAAP are cross-listed in the U.S. (around 85 per cent).[29] A firm's exposure to SEC enforcement of strict U.S. disclosure requirements signals such commitment to market participants, who are aware of the increased exposure to litigation risks if the firm fails to meet the standards required.[30] In this respect, adopters of IFRS are not on an equal footing.

CONCLUSIONS

This study focuses on the European setting where different GAAP regimes have long been in force, albeit in the presence of gradual harmonization. The economic consequences of such diversity in European accounting stem from the inability of market participants to see through differences in the conservatism bias in financial accounts, which is attributable to the different sets of GAAP in operation. This paper is based on the Abnormal Earnings Growth equity valuation model that describes how the conservatism bias in forward earnings can be corrected by subsequent expected earnings growth.

It is shown empirically that accounting diversity is likely to be of little importance in integrating financial markets. Given this finding, we might expect a similarly inconsequential effect from a switch between standards, or simply a decrease in the risk premium if the firm switches to a higher disclosure regime. However, the switch to internationally recognized GAAP is shown here to entail at least short-lived costs, which depend not only on the set of standards adopted but also the level of pre-adoption disclosure. Further examination of the impact of post-adoption disclosure on the implied risk premia of firms confirms that the adoption of a more visible set of standards enhances the firm level disclosure effects.

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[27] We have also estimated (12) using the alternative specifications of the risk premium and excluding the control for size effect. The results obtained (not tabulated) are very similar to those reported in Table 4.

[28] Lang *et al.* (2006) provide evidence that, among firms cross-listed in the U.S., those that prepare local accounts in accordance with U.S. GAAP show less evidence of earnings management than those that merely reconcile earnings to U.S. GAAP. This is especially the case if the firms are domiciled in jurisdictions offering weak investor protection, suggesting that the extra layer of regulation imposed by the SEC does not replace the effect of the regulatory environment in the firm's country of domicile.

[29] For a cross-listing on a U.S. stock exchange, firms have to file with the SEC, especially if they are to list at the NYSE, thus subjecting themselves to SEC enforcement rules. Sixty-seven per cent of firms from our sample that cross-list in the U.S. are listed on the NYSE, and 18 per cent are listed on the OTC market.

[30] Lang *et al.* (2003) demonstrate that firms with ADRs experience increases in valuation around the time of cross-listing in the U.S., which is consistent with these firms enjoying a lower cost of capital. In addition, Hail and Leuz (2004) provide evidence that cross-listing on a U.S. stock market reduces the firm's cost of capital and that this effect is larger for firms domiciled in countries with weaker institutional structures, cross-listing being their way of 'opting out' of the regulatory framework in the country of domicile.

Overall, the findings of this study suggest that accounting diversity *per se* does not have costs as long as the underlying economies are converging. However, this does not hold in the case of an accounting regime switch, where there are economic consequences which are likely to depend on firm level disclosure efforts around the switch, as well as the standing of the GAAP that are adopted. The more disclosure and the more visible the GAAP, the faster the cost of switching to another set of standards is eliminated.

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GRAHAM PARTINGTON

Discussion of Dargenidou, McLeay and Raonic

The paper by Dargenidou, McLeay and Raonic (hereafter DMR) presents an ambitious project, broad in its conception and large in its scope. The authors investigate the relations between accounting, the cost of capital and the forward earnings multiple for individual firms across national markets in Europe. They also consider the cost of switching to international accounting standards. In some of the sections below, I point to the importance of variables such as leverage and taxes that are not included in the authors' empirical analysis, but which might explain their results in relation to the forward earnings multiple. This discussion has a positive intent, to provide alternative explanations and possible directions for future work. It is not intended as disparagement. Given the extent and difficulty of the empirical work undertaken, it would be curmudgeonly to demand more of the authors. It is also worthwhile to point out that several of the issues raised in my discussion are generic to the related research literature rather than being issues restricted to the current paper.

DMR show that the forward earnings multiple (inverse forward earnings yield) is partially explained by sector effects and country effects. It seems that the sector effects have substantially greater explanatory power and that the significance of country effects has declined over time. A similar result is obtained for their estimate of the risk premium, but in this case the country effect becomes insignificant at a time coincident with accelerating integration of European capital markets. The authors argue that the country effects arise from national differences in accounting, but that the dominance of sector effects is evidence that national differences in accounting are not particularly important to the forward earnings multiple and the cost of capital. They argue too that the integration of capital markets diminishes the importance of national accounting standards and thereby also reduces the cost of the transition to international accounting standards. However, as discussed below, there are other variables that might explain country and sector effects, for example, leverage. Such variables might explain the paper's results, and they might also confound the detection of the true accounting effect at the country level. Of course, it may be that there is no accounting effect to detect, because, as DMR suggest, investors may see through the accounting veil

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and adjust for bias arising from accounting methods. Consequently, national differences in accounting methods may be of limited relevance to valuation and the cost of capital.

THE COST OF CAPITAL DEFINITION AND CAUSALITY

In respect of the relevance of accounting to the cost of capital, it is worthwhile to observe that asset pricing models, which describe equilibrium required returns, such as the standard CAPM, the consumption CAPM or the intertemporal CAPM, do not include accounting as a determinant of required returns.[1] In these models the argument for an accounting effect must rely on accounting having an impact on the inputs to the models, such as the market risk premium. However, rather than using asset pricing models, accounting-based researchers have, as in DMR, tended to back out the cost of capital from the relation between value and future cash flows or earnings. Care must be taken in this approach because there is a risk of confusing measurement with causality.

Such a confusion is common in relation to the cost of capital. For example, measurement of the weighted average cost of capital (WACC) requires leverage as an input variable. However, this does not mean that the cost of capital depends on leverage, although many students and some practitioners misinterpret it this way! Even if empirical results showed that across firms WACC varied with leverage, this would not necessarily be evidence of a causal relationship. For example, leverage might correlate with the risk of the underlying assets (i.e., the business risk of the unlevered firm), in which case leverage proxies for asset risk and should therefore correlate with WACC.

Similarly, care is required in distinguishing the role of accounting in measuring the cost of capital as opposed to a causal influence. In this respect the first part of DMR's paper, which involves measurement of the cost of equity capital, correctly treats the cost of capital as exogenous. The second part then investigates how the equity risk premium (measured in the first part) varies for firms that have changed from national to international accounting standards. The regression analysis suggests that there is a correlation between the equity risk premium and switching accounting standards. If this result is accepted, then the question is whether it represents a causal relation. I would expect a high probability that stocks switching to international standards were also cross-listed; possibly they might have more overseas shareholders on their share register, and so on. In short, my question is: Are any changes in risk premia due to the accounting switch, or due to other factors that correlate with the accounting switch?

The title of the paper by DMR refers to the cost of capital, but the text makes it clear that the analysis relates to the cost of equity capital. This distinction is important. It highlights the importance of definition and reminds us that in relation to the cost of capital there are some definitional reefs on which even careful research can founder. As Nantell and Carlson (1975) pointed out in the context of the weighted average cost of capital, there is not just one measurement of WACC but several, and provided the definitions of cash flow and WACC are correctly paired, one WACC is as good as another in terms of obtaining the correct market value. Indeed, the definition of the cost of capital is often tautological, given a definition of cash flow *C* and a market price *P*, the cost of capital is the discount rate *r* that equates *C* to *P*. In practice this is much trickier than it seems, particularly in the presence of taxes, and care with definitions is critically important.

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[1] There is one asset pricing model, the APT, which does not specify the risk factors. Consequently, if the argument can be made that accounting is a systematic risk factor then it could be a variable in the APT.

No controls for leverage effects are included in the paper and both sector and country could proxy for leverage differences. If sector leverage effects on the cost of equity, and hence the forward earnings multiple, are stronger than national leverage effects, which seems plausible, this could explain DMR's results. Since the cost of equity is being measured from market prices, the cost of equity is an after corporate tax but before personal tax cost of equity, so it may be affected by taxes. Again, there could be both country and sectoral tax effects driving differences in the cost of equity. Thus, like leverage effects, tax effects might drive the results and/or confound the detection of any effects of accounting.

More subtly, the cost of equity can depend upon the differential between capital gains taxes and taxes on dividends, an effect that is assumed away in the theoretical models used by DMR. These models assume either no personal taxes, or equality between effective tax rates on dividends and capital gains. This problem and its conceptual solution are discussed in more detail later.

It may be argued that the international integration of capital markets makes domestic tax regimes less relevant if the marginal investor setting prices is an international investor. However, there is considerable evidence that international integration is far from complete. For example, there is a well known home country bias in the formation of investors' portfolios. There is also evidence that the prices of dual-listed companies depend on the location of their trade (Froot and Dabora, 1999) and that the value of dividends on cross-listed stocks varies according to the tax regime of the market of listing (Jun *et al.*, forthcoming). However, with the widespread use of one currency, there is probably more integration across Europe than across most other international markets, and DMR place some reliance on this belief.

To be somewhat more precise about the cost of capital definition, we are dealing with the nominal cost of equity capital after corporate but before personal taxes. This in turn implies that the cost of equity capital may vary according to national inflation rates and company sensitivity to inflation. There are two factors that may be at work here. One is the variation in required rates of return as compensation for expected inflation, and most of this effect is captured in the benchmark return that proxies for the risk free rate. The second effect comes from inflation risk, that is, that future rates of inflation are uncertain, and the sensitivity of equity returns to the rate of inflation is likely to differ across countries and sectors. Thus inflation may cause country and sectoral differences in risk premia.

Consequently, differences in inflation, inflation risk, and differential sensitivity to inflation risk, may also be factors that affect the cost of capital and the forward earnings multiple. DMR do introduce inflation into their analysis, but only as an alternative estimator of terminal growth rates.

VALUATION MODELLING AND EARNINGS

Beginning from the concept of capitalized future earnings, and drawing from Ohlson and Juettner-Nauroth (2005), DMR build their analysis on the foundation of equation (1) below (equation (5) in their paper)

$$P_0 = \frac{e_1}{r} + \sum_{t=1}^{\infty}(1+r)^{-t} \cdot \frac{1}{r}[e_{t+1} + r{\cdot}d_t - (1+r)e_t], \tag{1}$$

where P_0 is the current share price, e_t is the earnings per share at time t, d_t is the dividend per share at time t, and r is the cost of capital. In introducing capitalized earnings, DMR refer to Miller and Modigliani (1961), widely known as the dividend irrelevance paper, but which also deserves to be widely known as a valuation paper.[2] It is instructive to consider the link between one of Miller and Modigliani's valuation models and equation (1). Miller and Modigliani's investment opportunities valuation model is given by equation (2). For consistency of notation with equation (1), the variables in equation (2) are expressed on a per share basis, but caution is required with per share valuation models for reasons explained below.

$$P_0 = \frac{e_1}{r} + \sum_{t=1}^{\infty}\frac{I_t(R_t - r)}{r(1+r)^t}, \tag{2}$$

where I_t is the investment per share made at t, and R_t is the return that is earned in perpetuity on the investment at t. Earnings for $t + 1$ are given by:

$$e_{t+1} = e_t + R_t I_t. \tag{3}$$

Multiplying out the brackets in the numerator of equation (2) and substituting for $R_t I_t$ from equation (3) gives:

$$P_0 = \frac{e_1}{r} + \sum_{t=1}^{\infty}(1+r)^{-t} \cdot \frac{1}{r}(e_{t+1} - e_t - rI_t). \tag{4}$$

If the level of investment is written as $I_t = e_t - d_t$, then substituting in equation (4) gives equation (1). Writing the investment term as $e_t - d_t$ highlights an important assumption implicit in equation (1), either that there is no external financing, or that dividends are defined to include contributions, or withdrawals, of capital by owners. The former alternative is unrealistic, while the latter introduces another taxation problem. Capital transactions typically have different tax consequences to dividends, and equity contributions have different tax consequences to withdrawals of equity capital. Such tax effects are not accommodated in the models above and the dividend calculations in the empirical work do not appear to have been adjusted for flows of equity capital. The importance of such flows is indicated by the work of Bernstein and Arnott (2003) in relation to computing the market risk premium. Their evidence suggests that, when GDP is used as an estimate of the terminal dividend growth rate, 2 per cent should be deducted to allow for the new capital that will be required in the floating of new companies.

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[2] Care needs to be taken in talking about capitalized earnings. Miller and Modigliani's (1961) earnings model does not capitalize earnings, it capitalizes residual income, which they show is the same as capitalizing the driver of value, net cash flow.

Another problem arising from equity issues is that the number of shares on issue changes and this is why Miller and Modigliani (1961) develop their valuation models in terms of total earnings, total investment and total dividends for each period. Converting the models to a per share basis requires either that the number of shares is always constant, or that the future per-share values are expressed in terms of values attributable to the shares on issue at time $t = 0$. Thus for valuation purposes, future EPS is not total expected earnings at t divided by the number of shares at $t = 0$, but instead the divisor should be the expected number of shares on issue at t. Hopefully, this is reflected in the analysts' forecasts of EPS that researchers typically use.

THE FORWARD EARNINGS MULTIPLE

The availability of analysts' EPS forecasts allows computation of the forward earnings multiple, or prospective price earnings ratio. Since the inverse of the forward earnings multiple is the key dependent variable in DMR, some study of this ratio is worthwhile. Following Brealey *et al.* (2000), we can write the current share price as:

$$P_0 = \frac{e_1}{r} + \mathrm{PVGO}_0, \tag{5}$$

and by rearrangement write the forward earnings yield (inverse of the forward earnings multiple) as:

$$\frac{e_1}{P_0} = r(1 - \frac{\mathrm{PVGO}_0}{P_0}), \tag{6}$$

where PVGO_0 is the present value of growth opportunities at $t = 0$. There are several ways that PVGO_0 can be expressed. For example, PVGO_0 can be expressed as $\sum_{t=1}^{\infty}(1 + r)^{-t} \cdot \frac{1}{r}[e_{t+1} + r{\cdot}d_t - (1 + r)e_t]$ from equation (1), or as $\sum_{t=1}^{\infty}\frac{I_t(R_t - r)}{r(1 + r)^t}$ from equation (2).[3]

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[3] Note, however, the underlying perpetuity assumption in both models. A more general approach could recognize the stochastic nature of future investment opportunities and their contingent nature. This would require real options analysis.

DMR invoke Easton's (2004) argument that if $e_1 = rP_0$, that is, next period's expected accounting earnings equals the equilibrium expected economic income, then PVGO_0 must be zero. Next period's expected accounting earnings are then sufficient for valuation, and the cost of equity is given by the earnings yield. The reason that this works is that, given prices in equilibrium, the rational expectation is to earn the required return on the price of the share. Thus the equilibrium expectation at t for economic income at $t + 1$ is given by rP_t, and the price at any time t is given by $P_t = \sum_{t=t}^{\infty} \frac{rP_t}{(1+r)^{t+1}} = \frac{rP_t}{r}$ for any t. Thus, with equilibrium economic income, valuation can be accomplished using the expectation at t of earnings at $t + 1$. The interpretation of a non-zero PVGO using equation (1), therefore, is that it arises from the divergence between expected accounting earnings and expected equilibrium economic income.

A zero PVGO using equation (2) arises if all subsequent investments earn only the cost of capital r. All investments would then be zero NPV and, in such a no growth world, the cost of equity capital is equal to the earnings yield and the expected accounting earnings equals the equilibrium economic earnings. A positive PVGO arises from disequilibrium in the asset market, allowing the opportunity to create wealth by investing in assets that generate a return greater than the cost of capital. Despite such opportunities, if expected economic income were substituted for e_1 in equation (2), the PVGO term would have to be set to zero. The intuition for this is that the economic income already reflects the expected PVGO. This is because the expected value of the abnormal investment returns is already impounded into the price P_0. In the context of equation (2) therefore, as in equation (1), a non-zero PVGO implies a divergence between expected accounting income and expected economic income. In Miller and Modigliani's (1961) model, for example, next period's earnings e_1 are expressed as a level perpetuity from the current investment. This does not reflect the expected value from future investments.

Notice that the foregoing discussion implicitly treats r as an exogenous variable. This is because, with respect to r, equations (1), (2), (5) and (6) are measurement equations. Causality flows from r to prices and hence to the forward earnings multiple.

FINITE HORIZONS AND MEASUREMENT ERROR

Infinite series make impossible measurement demands in empirical work. Therefore, DMR assume a constant growth rate in perpetuity from $t = 2$ onwards, which allows equation (1) to be rewritten as equation (7)—equation (6) in their paper.

$$P_0 = \frac{e_1}{r} + \frac{e_2 + r \cdot d_1 - (1 + r)e_1}{r(r - g)}. \tag{7}$$

Given the data requirements, there was probably little alternative to the constant growth assumption and therefore I have considerable sympathy with this approach. However, it seems unlikely that, within two earnings forecasts, growth expectations for every firm have settled down to a constant value. Therefore, equation (7) seems likely to be a mis-specification of the price equation for many of the firms studied. That the horizon is too short is indicated by the number of observations with negative earnings forecasts. These cases have to be deleted because otherwise they would yield a negative cost of capital. In the empirical implementation, not only is a constant expected growth rate assumed for each firm from year two onwards, but it is also assumed that the expected growth rate is the same across all firms. This latter assumption might be a reasonable approximation in the long term, but two years is hardly long term in models based on infinite series.

As a consequence of the growth assumptions, I would expect substantial measurement error in the empirical estimates of r, and hence in the firm's risk premium $r - r_f$ which is derived from equation (7). I note, however, that the median estimates of the risk premium, reported in Table 1 of DMR, seem quite reasonable. The question is whether the same can be said of the individual firm estimates?

Other sources of possible measurement error in r lie in the expected earnings and expected dividends variables. Analysts' forecasts are used as a proxy for earnings expectations and the possibility of the presence or absence of bias in such forecasts is extensively discussed in DMR. The estimate of expected dividends is given by a three year average of payout ratios times the earnings forecast for the subsequent year. I am unsure about the properties of this estimator. With fluctuating profits, actual payout ratios can be quite volatile due to firms stabilizing dividends. Thus averaging payout ratios over time makes sense; the question is whether three years is long enough. A commonly used alternative for dividend expectations is the naive model, where current dividends are projected forward to the next period. It would be interesting to know how sensitive the results are to this alternative.

The sensitivity of the results to terminal growth rate assumptions is examined by using the bond rate, the inflation rate and a zero growth as alternative terminal growth rates. The main conclusions relating to country and sector effects are robust to these alternatives. However, the use of alternative growth rates does not overcome the issue of the short forecast horizon at which they are applied. Also, as Table 1 in DMR shows, the median risk premia differ according to the terminal growth rate assumed. These differences are not large, typically 1 or 2 per cent, but such differences can have a big impact in valuation.

Given the likely measurement error in the risk premia, there are two questions that arise in relation to the empirical work. First, is the measurement error such that the resulting measurements of the firms' risk premia are unbiased, or is there a systematic bias for some firms (e.g., those with expected high growth rates into the future)? Second, are the regressions which use the firm risk premium as the dependent variable explaining the true risk premium, or the sources of noise in its measurement?

Rearranging equation (7) and partitioning the cost of equity into the risk-free rate and the risk premium gives equation (8)—also equation (8) in DMR. DMR label the third term of equation (8) the abnormal earnings yield:

$$\frac{e_1}{P_0} = r_f + (r - r_f) - \frac{(e_2 + r \cdot d_1 - (1 + r)e_1)/(r - g)}{P_0}. \tag{8}$$

Equation (8) is then used in the argument that differences in forward earnings yields (and hence forward earnings multiples) are driven by the abnormal earnings yield, which in turn is driven by accounting conservatism and the difference between accounting and economic earnings. DMR argue that integrated financial markets are likely to have similar risk-free rates and similar risk premia across sectors irrespective of country, thus country effects in forward earnings yields would be driven by the abnormal earnings yield. They further argue that if accounting is harmonized then country specific effects in abnormal earnings yields will disappear, and only sectoral effects would remain. In these circumstances, variation in firms' forward earnings yields would be explained by sector effects in abnormal earnings yields and also risk premia, but not by country effects. Forward earnings yields would then be directly comparable across countries since country effects would be insignificant.[4]

The foregoing argument is important to the conclusions to be drawn from DMR's empirical tests. The argument requires that capital markets be well integrated. The extent of capital market integration is debatable, as discussed earlier, even in Europe. For example, BHP Billiton's share prices have varied between Australia and the U.K. and across the London, Frankfurt, Stuttgart, Zurich and Paris exchanges. Also, as discussed earlier, there could be tax, leverage, and inflation effects in country and sector returns. This is not an exclusive list of alternative explanatory variables; for example, it might be suggested that legal systems affect the cost of equity capital and hence the forward earnings yield by country. Reliance on equation (8) requires acceptance of the short forecast horizon, and acceptance of the proposition that different levels of taxation on dividends and capital do not matter, since equation (8) is built on models that require this assumption. It is not clear how important the preceding considerations are—they may or may not substantially affect DMR's results. It is clear, however, that a suitably guarded interpretation of the results is required.

The differential taxation of dividends and capital gains leads to a problem in the discounted dividend model, which in turn lies at the root of the valuation models in much of accounting research, including DMR. The starting point for deriving the discounted dividend model is given by equation (9), and then, by recursive substitution for future prices, the current price can be re-expressed as the discounted value of an infinite stream of future dividends:

$$P_0 = \frac{d_1}{(1 + r)} + \frac{P_1}{(1 + r)}. \tag{9}$$

As Dempsey (1996) points out, there is a problem of dimensional inconsistency in equation (9). The price P_1 is measured at market value, but the dividend d_1 is measured at face value; also prices and dividends are taxed differently. A difference in taxes on dividends and capital gains (prices) is a key reason to expect differences between the face value and the market value of dividends. Whether the market value of dividends actually differs from the face value has been the subject of more than half a century of debate. Although the question remains open, there is plenty of evidence that the market value and the face value of dividends are not equal—see, for example, Graham *et al.* (2003). Fortunately, as Dempsey (1996) shows, there is a simple solution to the problem: Re-express the dividend at market value by multiplying the dividend by the ratio of the dividend's market value to its face value (q). The discount rate must also be re-expressed as a discount rate appropriate to discounting market values (prices), which is the cum-dividend required return (R). If there are capital contributions and withdrawals, these capital flows can be handled by including them at their market values. The resulting discounted dividend model is given by equation (10):

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[4] One wonders, however, absent a common currency, about the conditions under which forward earnings yields would be directly comparable across countries with different inflation rates, even if accounting rules were harmonized.

$$P_0 = \sum_{t=1}^{\infty} \frac{d_t \cdot q}{(1+R)^t}. \tag{10}$$

It may tempting to dismiss the adjustment as trivial, but there is evidence that q can be substantially different from 1. For example, Armitage *et al.* (2006) provide argument and evidence for a q of about 1.3 when the U.K. had an imputation tax system.

EMPIRICAL RESULTS

The discussion has already become quite lengthy and therefore I will confine myself to a few brief comments on the empirical results. Equation (7) is used to estimate r, this then allows decomposition of the forward earnings yield into the risk-free rate, the risk premium and abnormal earnings, as in equation (8). Separate regressions of the forward earnings yield, the risk premium and the abnormal earnings yield on country and sector variables shows that both variables are significant, but the sector effect is stronger. In the case of the risk premium, the country effect loses significance coincident with increasing integration of European capital markets. Some caution should be exercised in interpreting the results of the regressions for the risk premium and the abnormal earnings yields as they rely on the estimates of r, which may be problematic. However, the consistency of the results is quite convincing.

Subsequent regression analysis involves investigating the effect on the risk premium of switching from local to international accounting standards (local GAAP to IFRS or U.S. GAAP), and whether any effect from the switch diminishes as the period of reporting under the new standards regime lengthens. Given the choice of accounting standard regime, the analysis also considers how the risk premium is affected by the firm's transparency and disclosure. These risk premium regressions involve much smaller sample sizes and greater geographic concentration than in the country and sector analysis, since samples are restricted to firms that switch standards.

The regression results show a large increase in the risk premium on switching standards, but this reverses as time passes after the switch. Surprisingly, the main effect of an increase in transparency is to increase the risk premium, and there is also an interaction effect between transparency and the standard adopted. The sign of the interaction term varies according to the standard.

DMR attempt to control for the level of disclosure prior to switching accounting standards. As a disclosure proxy they use market capitalization in the year prior to switching. Unfortunately, while market capitalization proxies for disclosure it also proxies for other effects relevant to returns, such as liquidity. A negative and significant coefficient is found on the size variable, which is to be expected given the well-known size effect in returns.

Because of the problems in measuring risk premia the empirical work on the cost of switching standards is less compelling than the work on country and sector effects. Care must be exercised in interpreting the results. For example, the switch from local GAAP to international standards would increase the risk premia by about 4.5 per cent, which seems to be a large main effect. However, there is an offsetting effect from the interaction between switching and the firm size. For large firms the interaction effect would outweigh the main effects, and consequently the risk premiums could go down for some firms.

CONCLUSION

I commend DMR for their energy, effort and vision, although I am not convinced by all of their work. They argue that, given integrated financial markets, country differences in accounting will become less relevant to forward earnings multiples, which will be dominated by sector effects. As a consequence, forward earnings multiples will become comparable across similar sectors in different countries. The declining relevance of national accounting effects will, therefore, mitigate the costs of switching from national to international accounting standards. These arguments make sense, and the empirical work suggests that sector effects on the forward earnings multiple are more significant than country effects. However, I point to the partial nature of capital market integration and the existence of variables other than accounting, such as leverage, taxation and inflation, which could give rise to country and sector effects that might both confound any accounting effects and also explain the results of DMR. I conclude, therefore, that while the evidence is consistent with their argument it also has quite different interpretations.

In relation to the theoretical modelling, I show how the model used, which draws on the modern accounting literature, can be very simply derived from Miller and Modigliani's (1961) investment opportunities valuation model. This highlights the link between the value of growth opportunities and abnormal earnings yields. It also points to the importance of adjusting for capital flows (in and out) when measuring dividends and dividend growth. This has three further consequences. First, in relation to measuring correctly expected earnings and expected dividends per share, care needs to be taken to adjust for new shares to be issued in the future. Second, GDP growth needs to be adjusted downwards when used as the terminal growth rate for dividends in order to allow for the additional capital investment that will be required. Third, the tax consequences of capital flows are quite different from the tax consequences of dividends. This highlights a problem that lies at the root of most of the valuation models used in this literature. The models build upon the discounted dividend model for price, which either assumes no taxes, or that dividend income, capital gains and capital flows are equally taxed, which they are not. I suggest a conceptually simple solution to this problem.

In relation to the empirical work, I find the analysis of country and sector effects to be quite convincing. However, I point to the very short horizon used in the decomposition of the forward earnings yield. Because of this, and other reasons relating to modelling and measurement, I caution that there may be substantial measurement errors in the resulting estimates of firm risk premia. This may spill over into the subsequent empirical work that relates the firm's risk premium to the firm's choice to switch from local to international accounting standards. I question the plausibility of the results of the regression equations, which are used to analyse the effect of the switch. I also question whether the change to international standards may proxy for some other causal variable that was associated with the switch. Hopefully my discussion will prove helpful to future work.

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Effects of Database Choice on International Accounting Research

Data availability is one of the traditional obstacles confronting researchers carrying out international empirical studies in accounting. In recent years several databases have claimed to offer comprehensive coverage of accounting and financial data of firms worldwide. We analyse whether the choice of database has an effect on the results of empirical studies. We find that the results of a simple empirical adaptation of the Ohlson (1995) model for fourteen member states of the European Union change significantly depending on the database chosen (Datastream, Global Vantage, Company Analysis, Worldscope, Thomson Financial, Financials and BvD Osiris). These differences are mainly attributable to differences in the samples across databases. When we match observations across all databases the differences persist but are much less pronounced. Our main conclusion is that database choice matters, as it leads to different results when the same research design is used.

Key words: Database comparability; International empirical research.

International accounting research has increased substantially in the last decade. This growth in research interest has coincided with the appearance of several databases that, since the early 1990s, offer comprehensive coverage of accounting and financial market data for companies worldwide. Normally, it is the previous literature, and particularly the benchmark papers, that set the standard as to which database to use in empirical research, thus facilitating comparisons across studies. Such is the case of U.S.- or U.K.-based studies, where researchers have almost exclusively retrieved data from Compustat/CRSP and Datastream, respectively.

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However, database choice is not a trivial issue in international accounting research, as the lack of tradition and the existence of a wide choice of databases, have prevented the literature from leaning clearly toward any of the currently available sources of data. Differences across databases, if they exist, may lead researchers to conclusions that are difficult to extrapolate, potentially having important implications for the future development of accounting and corporate finance research.

Currently, the best known providers of accounting and other financial data for firms worldwide are Datastream, Global Vantage (or Compustat Global), Company Analysis, Worldscope, Thomson Financial, Extel Financials, BvD Osiris, BvD BankScope and BvD Amadeus. These databases specialize in financial statement data, although they sometimes provide additional data on other closely related items, such as market prices, analysts' forecasts, or corporate governance indicators. However, this is not always the case and costly annual subscriptions to general accounting databases often have to be complemented by purchasing other expensive data sources, such as CRSP and Compustat for U.S. data, I/B/E/S or JCF[1] for analysts' forecasts, local versions of Amadeus like FAME (U.K. and Ireland) or SABI (Spain and Portugal) for small national firms, local databases such as AspectHuntley for Australian data,[2] or databases that provide corporate governance related information such as Manifest for U.K. companies. Facing this broad choice of databases, some institutions opt to subscribe to database platforms like Thomson One Banker or Wharton Research Data Services (WRDS) to access several databases through the same interface.[3] Hence, database choice has not only empirical but also economic consequences.

Prior research has shown a limited amount of concern on how differences across databases could affect the results of international empirical accounting studies. For instance, Ball *et al.* (2000), using Global Vantage, imply that the differences between their results and those of Pope and Walker (1999), using Datastream, could be due to using different databases as sources for U.K. data. There is also some limited research on the existence of differences in certain items across databases for a single country, but no previous study has directly addressed the issue of how database choice may affect the results of international accounting research. This article provides the first evidence on the effects of database choice on the results obtained by such studies.

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[1] The JCF Corp. offers several products through which different types of analysts' forecasts data can be retrieved. It is a growing competitor for I/B/E/S.

[2] AspectHuntley was created in 2003 as a result of the merger between the two leading providers of Australian financial data: Aspect Financial Pty Ltd and Huntley's Financial Services Pty Ltd. However, the use of this database is increasingly being supplanted by the use of database platforms, such as Thomson One Banker. We thank the discussant for providing this information.

[3] It should be taken into account that the use of several databases for research has high costs for the researcher, mainly related to (a) learning how to use the various databases, as they tend to differ quite considerably, and (b) matching data from different databases into a single dataset, which can be an onerous task.

Carrying out a simple market-based study in accounting using an international sample covering fourteen member states of the European Union, we show that database choice significantly affects the results of the model. Samples change substantially depending on the database, leading to significantly different results using identical research design. Specifically, we download all available data for fourteen EU member states for the period 1990–99, from seven different databases.[4] These are Datastream, Global Vantage, Company Analysis, Worldscope, Thomson Financial, Extel Financials and BvD Osiris. Using these data, we run a simple adaptation of the Ohlson (1995) model that regresses book value of shareholders' equity and earnings on the market value of the company, and find significant differences in the regression coefficients and measures of fit depending on the database chosen. When we match observations across databases, the differences almost disappear. This points to a size-related effect (the databases that offer fewer firm-year observations cover just the largest firms, while coverage increases as the average size of firms decreases), which would explain the differences.

In summary, our results contribute to international empirical accounting research by providing evidence on the effects of database choice. The findings are relevant to accounting researchers, as they raise concerns about the international comparability of the results of much accounting research, and their generalizability. More pragmatically, the results may also be of interest to academic institutions when deciding on the acquisition of international accounting data.

ACCOUNTING AND FINANCE DATABASES

Normally, research institutions invest in databases only when there is sufficient assurance of usage. Meek and Thomas (2004) point out that many such institutions in the U.S. are willing to incur the costs of databases for U.S. data (Compustat and CRSP) because many staff members and students use them. Oftentimes, researchers and PhD students are conditioned by the databases chosen by their institutions, driving even to a certain extent the type of research undertaken. When the host institution subscribes to several databases, the choice of database is commonly made on the grounds of (a) data availability, and (b) normal research practice.

Data availability refers to the number of observations covered by a database, both in terms of time-series and cross-section coverage (i.e., number of years and number of firms), although it may also refer to number of items available in the database. Data availability is an issue commonly cited in international accounting research. For example, Basu's (1999, pp. 90–1) discussion of Pope and Walker (1999) states that 'Pope and Walker collect data from 1976–96 for U.S. firms from Compustat PC Plus and for the U.K. firms from Datastream. However, they have fewer firms in each annual cross-section for both countries than researchers using other databases such as Global Vantage.' Also Land and Lang (2002, footnote 4) argue that they use Global Vantage instead of Datastream or Worldscope because 'data availability, especially for early years, is best with Global Vantage'.

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[4] From the previously mentioned databases, we exclude (a) BankScope, because it is a database specialized in financial institutions data, and (b) Amadeus, because, although it includes both public and private companies, it concentrates mainly on private firms. Our empirical analysis focuses on publicly listed non-financial firms and Osiris is the product offered by Bureau Van Dijk for public companies.

By normal research practice we refer to certain research contexts where one database has become mainstream and is widely used and accepted as the source of accounting data. For example, this is the case in the U.K., where most researchers have traditionally used Datastream, setting it as a standard and promoting its use even when other data sources are available, to facilitate the replication and comparison of results. However, there are currently no well-established databases for international accounting research, and particularly, for European-based accounting research. A review of the main international accounting research articles published in both U.S. and international journals shows that, quite often, researchers choose to combine several databases, and that although they appear to favour Global Vantage (out of the 32 papers identified, 16 use this database), several studies choose Worldscope (8), Datastream (5) or Extel Financials / Company Analysis (4), among other less well-know options. Table 1 offers a summary of the databases used to retrieve the accounting data underlying some key articles published in the main journals in this area. It can be observed readily that, in agreement with our previously explained 'normal research practice' argument, U.K.-based accounting research prefers Datastream to other data sources. Also, U.S.-based researchers appear to prefer using either Global Vantage or Worldscope, suggesting that, at least amongst U.S. academics, a certain tradition is already developing for international accounting research.

Below is a brief review of the databases currently available for research purposes depending on the existence or not of an established research practice and database usage standardization, paying particular attention to the case of international accounting research.

The Case of U.K. and U.S.: The Existence of Well-Established Research Databases

The main source of U.S. (and Canadian) accounting data is Compustat, a database maintained by Standard & Poor's Investment Services, Inc., a division of McGraw-Hill, Inc. Compustat has become the standardized database for accounting research, to the point that it is difficult to find a published empirical article that does not use it in the analysis of U.S. firms. The same could be said of CRSP, the database on share prices and other market information maintained by the Center for Research in Security Prices at the University of Chicago, and I/B/E/S or First Call, the most popular databases that offer analysts' forecasts and related data.[5]

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[5] I/B/E/S International Inc. created their Academic Research Program over thirty years ago to provide both summary and individual analyst forecasts of company earnings, cash flows and other important financial items, as well as buy-sell-hold recommendations. I/B/E/S covers both U.S. and international quoted companies. In 2000, when its previous owner, the Primark Corporation, was acquired by Thomson Corporation, I/B/E/S was integrated with Thomson Financial / First Call. The First Call Historical Database, or FCHD, has been built from First Call's Real Time Earnings Estimates (RTEE) service and contains earnings information dating as far back as 1990, on 8,500 U.S. securities, 1,000 Canadian securities and 180 ADRs.

TABLE 1

DATABASE CHOICE FOR KEY RESEARCH PAPERS ON INTERNATIONAL ACCOUNTING

Paper	Journal	Countries under study	Database chosen
Aboody *et al.* (1999)	*JAE*	U.K.	Datastream International
Ali and Hwang (2001)	*JAR*	16 non-U.S.	Global Vantage
Ashbaugh and Pincus (2001)	*JAR*	13	Worldscope
Baginski *et al.* (2002)	*TAR*	U.S., Canada	Compustat
Ball *et al.* (2000)	*JAE*	Australia, Canada, U.K., France, Germany, Japan, U.S.	Global Vantage Industrial/Commercial File
Ball *et al.* (2003)	*JAE*	Hong Kong, Malaysia, Singapore, Thailand	Global Vantage Industrial/Commercial File
Barth and Clinch (1996)	*CAR*	U.S., U.K., Australia, Canada	Compustat's Global Vantage
Basu *et al.* (1998)	*JBFA*	10	Global Vantage
Bhagat and Welch (1995)	*JAE*	U.S., Canada, U.K., Japan, Germany, France, Netherlands	Compustat's Global Vantage
Bhattacharya *et al.* (2002)	*TAR*	34	Worldscope
Black *et al.* (1998)	*JBFA*	U.K., Australia, New Zealand	Global Vantage
Bushman and Piotroski(2006)	*JAE*	38	Global Vantage
DeFond and Hung (2004)	*JAR*	33	Worldscope
Fan and Wong (2002)	*JAE*	Hong Kong, Korea, Thailand, Taipei, Singapore, Malaysia, Indonesia	PACAP database
García Lara *et al.* (2005)	*JBFA*	U.K., Germany, France	Datastream
Giner and Rees (2001)	*JBFA*	U.K., Germany, France	Extel Financial Company Analysis
Gordon and Joos (2004)	*TAR*	U.K.	Datastream International
Guenther and Young (2000)	*JAE*	France, Germany, U.K., U.S., Japan	Global Vantage
Haw *et al.* (2004)	*JAR*	22	Worldscope
Hope (2003)	*JAR*	22	Datastream, Global Vantage, Compustat, Global Access
Hung (2000)	*JAE*	21	Global Vantage Industrial/ Commercial Files
Joos and Lang (1994)	*JAR*	Germany, France, U.K.	Global Vantage Industrial/ Commercial File
Kallapur and Kwan (2004)	*TAR*	U.K.	Extel Company Analysis, Global Vantage
Khunara and Raman (2004)	*TAR*	U.S., Australia, Canada, U.K.	Global Vantage Industrial/ Commercial File
Land and Lang (2002)	*TAR*	Australia, Canada, Germany, France, U.K., Japan, U.S.	Global Vantage
Lang *et al.* (2004)	*JAR*	27	Worldscope
LaPorta *et al.* (1997)	*JF*	49	Worldscope, Extel
LaPorta *et al.* (1999)	*JF*	27	Worldscope
Leuz *et al.* (2003)	*JFE*	31	Worldscope
Monsen and Wallace (1995)	*CAR*	Denmark, Sweden, Finland, Norway, Iceland	Oslo Stock Exchange (manual)
Pope and Walker (1999)	*JAR*	U.K., U.S.	Compustat PC Plus, Datastream
Raonic *et al.* (2004)	*JBFA*	13 (all European)	Datastream
Seetharaman *et al.* (2002)	*JAE*	U.K., U.S.	Financial Times Extel Company Analysis, and Disclosure's Global Access
Young and Guenther (2003)	*JAR*	23	Compustat's Global Vantage

Note: The following abbreviations have been used: *CAR*, *Contemporary Accounting Research*; *JAE*, *Journal of Accounting and Economics*; *JAR*, *Journal of Accounting Research*; *JBFA*, *Journal of Business Finance and Accounting*; *JF*, *Journal of Finance*; *JFE*, *Journal of Financial Economics*; *TAR*, *The Accounting Review*.

In the U.K., Datastream has been the main source for accounting and financial information for many years. The number of items available, that is, the level of disaggregation of accounting data for U.K. firms in Datastream is larger than in other databases, and besides, it offers not only accounting data for the U.K., but also for firms from both developed and emerging economies, as well as information on daily share prices,[6] market indexes, macroeconomic indicators, bonds, foreign exchange rates, interest rates, commodities and derivatives. However, as a result of the acquisition of the Primark Corporation by Thomson Financial in 2000, Datastream stopped updating its accounting data in 2004 and subsequently substituted it with data from Worldscope. Therefore, our results are of special interest to U.K.-focused researchers, as they will not be able to use Datastream accounting data from now on. Clearly, this raises the question of which database will become mainstream for accounting research in the U.K., and whether comparisons with prior research will be difficult to undertake, particularly if significant differences exist between Datastream and other databases, especially Worldscope, given that it is the direct substitute for Datastream accounting data in many U.K. academic institutions.

In countries such as the U.K. and the U.S., researchers enjoy wider data availability and, although research practice has imposed one database as the standard, errors and differences across databases still exist and their potential consequences on empirical research have been pointed out in the literature. Early studies in this area were mainly concerned with the existence of errors in the databases (e.g., Rosenberg and Houglet, 1974; San Miguel, 1977; Bennin, 1980). More recently, Guenther and Rosman (1994) show that differences in industry codification between Compustat and CRSP can change the results and conclusions of certain studies, and they demonstrate that the results in Freeman and Tse (1992) change when they use CRSP's instead of Compustat's industry classifications. Closely linked to this result, a recent paper by Krishnan and Press (2003) shows that using NAISC (North America Industry Classification System) instead of SIC (Standard Industrial Classification) for categorization by industry can also significantly affect the results of studies that use industry classification as the basis of their analysis. Looking at specific items, Kern and Morris (1994) analyse the potential impact on empirical research of the differences between Compustat and Value Line databases, and show that for the same firms, both the figure of total assets and that of total sales can differ across databases. Similarly, Courtenay and Keller (1994) argue that errors in CRSP can affect studies that use trading volume data, and Elton *et al.*'s (2001) comparison of the CRSP mutual fund database with Morningstar shows large differences in both the monthly fund returns and the measures of risk-adjusted returns contained in both databases. Finally, Abarbanell and Lehavy (2000) show that the choice between I/B/E/S, First Call, Zacks and Compustat will likely have effects on the results of studies in the areas of earnings management, earnings response coefficients and the value relevance of accounting information.

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[6] Market data coverage in the other databases considered is more limited, as they mainly offer fiscal year end prices.

We expect that these errors and differences across databases found exclusively in the U.S. will also exist in the databases analysed in this paper, and that they may be even more marked when not just one but several countries are taken into account.

The Case of International Accounting Research: The Database Choice Dilemma

The standardization of database usage for market-based research in the U.S. and the U.K. is hardly the case for studies using European or international data. For international researchers interested in retrieving accounting and market data for listed firms worldwide there are several available databases, among which the best known are: Datastream, Global Vantage, Worldscope, Company Analysis, Thomson Financial, Extel Financials and BvD Osiris. The choice between these databases has usually been made on the grounds of: (a) database availability at the host institution, (b) availability of the required items for the particular analysis, (c) normal research practice and (d) time-series data availability and firm coverage. We have previously referred to most of these elements. Data constraints should not be underestimated, but it is likely to be the budgetary constraint that dominates the academic institution's decision to subscribe to a limited number of databases, particularly to databases that provide international data. Often, a single database is acquired, thus driving researchers into its use. If more than one database with similar data is available, then it is normal research practice that likely directs the choice, as we have argued previously. Below, we briefly describe the main data sources available for international accounting research.

Global Vantage is the name given to the international files of Compustat, which is commercialized by Standard & Poor's. Information from Global Vantage can be retrieved using Research Insight[7] or through database platforms such as WRDS. Similar to Compustat, an important feature of Global Vantage is that data are collected according to standardized definitions, researched and written by Standard & Poor's Compustat Services, Inc., which are in line with the regulations and standards of the Financial Accounting Standards Board, the Securities and Exchange Commission and U.S. Generally Accepted Accounting Principles and Procedures.[8] The database consists of four files: (a) Industrial/Commercial File, containing over 200 Income Statement, Balance Sheet, Flow of Funds and supplemental data items for firms in industry and commerce; (b) Financial

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[7] Research Insight is a program designed by Standard and Poor's to retrieve data from Compustat and Global Vantage.

[8] Therefore, data are not presented as reported when known differences in definitions exist. They are made compatible on an international basis by adjusting for differences in accounting principles among different countries. To disentangle such adjusting processes is not an easy task for the researcher and it is beyond the scope of this paper.

Services File, containing approximately 500 Income Statement, Balance Sheet, Flow of Funds and supplemental data items for bank, insurance, broker/dealer, real estate, and other financial services industries[9]; (c) Issue File, for market-related data items, including monthly prices, dividends, shares traded, issued capital, and earnings per share; and (d) Currency File, containing month-end and average translation rate items and cross-rate tables for designated currencies. The Industrial/Commercial and Financial Files contain data relating to more than 13,000 international publicly traded companies in over eighty countries. Coverage extends to twelve years of annual data. Market information covers more than ninety local market indexes and over 110 currencies. For key items, updates of the database can be obtained daily over the internet or monthly via http delivery.

Worldscope, Thomson Financial, Extel Financials and Company Analysis are all products now controlled, like Datastream, by the financial division of the Thomson Corporation.

Barron and Smithers design and produce the Thomson Extel Financials core database, which is available from Thomson via three alternative platforms: Company Analysis, Thomson One Banker or FTP feeds. Extel Financials is a database containing basic accounting data for 26,500 companies from over fifty-five different countries starting from 1985. This includes what they claim to be full quoted coverage for the U.K., France, Netherlands and Switzerland in Europe, and Singapore, Hong Kong, Malaysia, Thailand and Australia in Asia and the Pacific. In contrast with other databases, like Datastream, Worldscope or Global Vantage, the key feature that distinguishes Extel Financials is that the data are in a 'structured as reported' format, meaning that the data items are (a) the same as those reported in the annual report and accounts, and (b) structured in a way that strikes a balance between providing enough data to satisfy sophisticated customers and ensuring that it is still easy to use. There are potentially 1,450 data fields that can be retrieved.[10] The data are organized as a series of pyramids that show the relationships between the items.[11] The data are collected from native language reports, following a detailed process to allocate information to the correct fields.[12] The database is updated via weekly CD ROM or by FTP.

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[9] The number of items available for every given company in both the Industry/Commercial and Financial Files is smaller than that in Compustat for U.S. and Canadian firms, as the accounting items are provided on a more aggregated basis. Data are collected using consistent sets of items developed by examining financial statements from a variety of countries and identifying items that are widely reported by companies regardless of their geographic location, business activity and accounting practices.

[10] In reality, only a proportion of the 1,450 items will contain data for any one company. In the U.K., where accounting standards require a high level of detail in the annual accounts, a large industrial company will have data for around 450 of these fields.

[11] Each pyramid starts with a named grand total, such as 'total assets'. The next level breaks this total into its constituents; for example 'total assets' is broken into 'fixed assets' and 'current assets'. Subsequent levels break the components down into their components, and so on. Thus, at each level, the pyramid shows how the data items relate to those in the level below and the level above.

Company Analysis is a Windows-based product created in 1995 by Mike Barron and Jeremy Smithers that allows powerful manipulation of the Extel Financials database, which is claimed to be the origin of the data. This product is very attractive to the researcher as it has, from our point of view, the user-friendliest interface of all the databases under study, with Datastream likely placed at the opposite end of the scale. Data retrieval from Company Analysis is significantly less time-consuming than for any of the other databases under study.

Extel data were previously incorporated by The Financial Times in 'Financial Times Extel Company Analysis', and in Primark as 'Primark Extel Company Analysis', the underlying data being available only through Company Analysis. After Primark was taken over by the Thomson Corporation, the information from Extel was also offered through the database platform software Thomson One Banker. Therefore, data retrieved from Extel Financials using Thomson One Banker or directly using Company Analysis should come from the same source. However, the samples obtained differ substantially, and the data obtained from Extel Financials through Thomson One Banker appear to be closer to Worldscope than to the data retrieved from Extel using Company Analysis.

Worldscope claims to be the only source needed for comprehensive and detailed accounts (more than 1,500 different items) and market data for over 40,000 public companies (31,000 active and 9,000 inactive) in more than fifty developed and emerging markets, for up to twenty years of historical data, including annual, interim and preliminary data. Worldscope fundamentals, which are updated daily, are available on Thomson One Banker, Global Access, Datastream, FTP site (in ASCII format), customized data files and third party platforms. Worldscope data are collected from corporate documents such as annual reports and press releases, exchange and regulatory agency filings, and newswires. Similar to Global Vantage, the data are not presented as reported in companies' financial statements but standardized.

Information from Thomson Financial can be retrieved through Thomson One Banker.[13] Thomson Financial combines, in a somewhat obscure way, information from several databases (Compustat and Worldscope, among others).

Finally, BvD Osiris is owned by Bureau van Dijk Electronic Publishing, SA, and it contains a wide range of accounting and other items for firms from over 120 countries. Osiris claims to cover all publicly listed companies worldwide, as well as other major non-listed firms that are primary subsidiaries of publicly listed firms, or in certain cases, when clients request information from a particular company.

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[12] To describe this process, the database providers claim that: 'data editors are typically graduates with a background in accountancy . . . taking about seven hours to enter the data for one company; much more for a very complex company. Also, after inputting, the data undergoes more than 150 validation routines to ensure that the editor has not made any mistakes. If this test is successfully passed, the data is [*sic*] handed onto a senior editor who re-checks the entered data. In addition, a Quality Assurance team constantly rechecks a large proportion of the population, to ensure that any errors are identified.'

[13] Thomson One Banker allows direct data download from its website and also provides an add-in feature that permits downloading of large datasets into Microsoft Excel.

Bureau van Dijk also provides databases that offer coverage of non-listed small and medium size firms. Amadeus is their Pan-European database containing information on firms from thirty-four European countries. They also provide more detailed information on a national basis through the national versions of Amadeus, like FAME for the U.K. or SABI for Spanish and Portuguese firms. Data from the Bureau van Dijk databases can be retrieved using their own interface (which is the same for each of their databases), with two similar versions available: on-line and DVD. Osiris data can also be retrieved through WRDS. Apart from accounting data, Osiris provides information regarding ownership, news, ratings, share prices, forecasts, etc. The core accounting data are provided by World'Vest Base, and regional data are retrieved from Korea Information Service, Teikoku Databank (Japan), Huaxia International Business Credit Consulting Company (China), Multex (U.S.) and Edgar Online (U.S.). Different data sources are also used for other purposes. Accounting data are available as reported and also in what they call a standardized format to allow cross-border comparisons. BvD Osiris covers 24,700 listed, 900 unlisted and 2,690 delisted companies. The database is updated weekly over the internet and ten times a year on the DVD version. Data availability starts from 1986 although, as is the case with the rest of databases, the number of items available at the beginning of the coverage period is very limited.

In addition to these databases that provide accounting and financial data, accounting researchers might also wish to refer to databases for international data on other items such as analysts' forecasts—for example from I/B/E/S or JCF—or corporate governance data from diverse national providers such as Manifest, or Perfect Information for U.K. data, or ISS for U.S. data. In fact, specialized data on items such as CEO turnover or pension plan details are only available in a limited number of databases, and commonly, researchers do not use the more general accounting databases described previously to retrieve such data.

Hence, there is a wide variety of databases offering what would appear to be the same product: comprehensive international accounting data for firms worldwide. We test whether the data offered by these databases are in fact comparable, and whether differences, if they exist, may have an impact on the results and findings of market-based international accounting research.

RESEARCH DESIGN

Our main objective is to test if database choice has an effect on the results of empirical accounting studies using international data. To that end, we replicate the behaviour of a researcher who, having only one database available, intends to run a regression of market value on earnings and book value. This admittedly simple regression is run because (a) this is a specification commonly used in capital markets research in accounting, and (b) a finding of differences amongst databases using the most parsimonious model possible would strongly support the prediction that database choice has important implications for research. To test for differences among databases, we collected all data available for the period 1990–99 in seven databases (Datastream, Global Vantage, Worldscope, Company Analysis, Thomson Financial, Extel Financials and BvD Osiris), for all firms covered in fourteen European countries (all the EU member states prior to the May 2004 enlargement, except Luxemburg, i.e., Austria, Belgium, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Portugal, Spain, Sweden, the Netherlands and the United Kingdom). Financial firms are excluded from the analysis. This process generates seven sets of data, one for each database.[14] The information retrieved is in local currency, i.e., euros for member states in the Euro-zone, pounds sterling for the U.K., Danish crowns for Denmark and Swedish crowns for Sweden.

From each of these seven different sets of data, we remove missing data for the four variables necessary to carry out the empirical analysis, namely (a) market share price, (b) book value of shareholders' equity, (c) bottom line net income and (d) number of shares. After excluding firms with negative book value of shareholders' equity, we then calculate earnings per share and shareholders' equity per share, and remove the first and last percentiles of market share price, book value of shareholders' equity per share, and bottom line net income per share. Once the sample is constructed for each dataset, the following valuation model is run:

$$P_t = \alpha + \beta BVPS_t + \gamma EPS_t + e_t, \qquad (1)$$

where P is the market share price, $BVPS$ is the book value of shareholders' equity per share, EPS is bottom-line earnings per share and t is the time period indicator.

As previously argued, the rationale underlying the choice of model (1) to test for differences across databases is that it employs the three most frequently used variables in market-based accounting research: prices, book values and earnings. Furthermore, for any given firm with data available in every database, these three are the basic items for which all databases should have data. Were other less obvious data items used, such as environmental provisions or loans to directors, they might be available only in certain databases. This would complicate the inferences to be drawn about differences across databases, as the samples would be expected to differ anyway. If discrepancies are found among databases using a parsimonious model, then we can safely assume that the differences in the results would be even more significant if we were to use less common data items. A full comparison of the databases under study would require the downloading of all available data (all items, all years, all firms) so that conclusions could be drawn. Clearly, that is an extensive task that, although potentially interesting, is not the focus of our current analysis.

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[14] Data were downloaded around January 2004 using the subscription packages licensed to Lancaster University, except data from BvD Osiris, which were downloaded at the University of Valencia, during a research visit by Dr García Lara.

TABLE 2

NUMBER OF FIRM-YEAR OBSERVATIONS BY DATABASE AND COUNTRY, 1990–99

	Company Analysis	Datastream	Extel Financials	Global Vantage	BvD Osiris	Thomson Financial	Worldscope
Austria	320	248	424	263	117	431	431
Belgium	398	193	530	259	196	558	555
Denmark	541	389	634	387	279	918	918
Finland	268	367	304	298	135	562	561
France	2,057	1,483	2,668	1,491	944	3,368	3,366
Germany	1,674	3,170	2,059	1,538	599	2,967	2,965
Greece	94	277	92	61	191	661	360
Ireland	326	98	313	243	90	370	369
Italy	604	331	842	425	218	1,004	998
Portugal	72	359	94	136	70	392	390
Spain	454	343	681	455	189	813	810
Sweden	408	759	560	506	367	965	964
The Netherlands	762	527	977	703	319	1,078	1,077
United Kingdom	5,661	5,317	8,909	5,837	1,593	8,601	8,582

RESULTS

Descriptive Statistics

As can be seen in Table 2, the final sample size varies substantially across databases for all countries. If the sample changes across databases, this will obviously affect the results of any type of empirical study. Determining which sample gives a better picture of the whole population is beyond the scope of this article and likely not to be testable anyway.

Interestingly, the database that offers by far the fewest number of observations is BvD Osiris. A detailed analysis of the data shows that this database only offers valid information to estimate model (1) from 1996 onwards, and hence almost half of our sample period is not covered. Although accounting data are available in BvD Osiris from 1986 onwards, market capitalization (item 35907) appears to be available only from 1996. Given this data limitation, we report all results for BvD Osiris, but we avoid any reference to them in the subsequent discussion of our results.

Analysing the largest sample, the U.K., we observe that the sample ranges from 8,909 firm-year observations using Extel Financials, to 5,317 in Datastream. Thus, the sample in Extel Financials is 67 per cent larger than that in Datastream. This difference in the sample across databases is similar for the other countries under study. For example, in Germany the sample size ranges from 3,170 in Datastream

TABLE 3

MARKET CAPITALISATION BY DATABASE AND COUNTRY

	Company Analysis		Datastream		Extel Financials		Global Vantage		BvD Osiris		Thomson Financial		Worldscope	
	Median	*SD*	Median	*SD*	Median	*SD*	Median	*SD*	Median	*SD*	Median	*SD*	Median	*SD*
Austria	67	565	108	531	79	491	139	637	110	626	98	528	98	528
Belgium	107	1,929	535	2,504	74	1,472	281	2,492	165	2,584	112	1,437	113	1,441
Denmark	691	10,280	1,006	10,269	680	8,873	1,403	9,909	813	13,258	425	7,633	425	7,633
Finland	355	4,045	197	2,796	308	12,511	384	4,791	346	19,441	100	9,233	100	9,241
France	136	5,726	276	6,643	102	4,386	223	6,163	137	8,214	80	4,027	80	4,027
Germany	185	4,882	72	3,447	182	4,352	236	8,660	181	12,399	117	3,812	117	3,813
Greece	321	11,397	48	406	334	2,026	228	6,345	230	1,499	53	656	35	159
Ireland	53	691	349	1,263	78	540	119	874	151	2,750	76	750	76	750
Italy	151	4,401	342	5,256	145	3,978	258	5,971	281	6,324	140	4,192	141	4,204
Portugal	208	1,954	57	2,494	291	2,366	83	1,412	216	1,727	41	1,198	42	1,201
Spain	229	5,236	471	6,004	219	4,326	314	3,351	534	8,743	183	4,017	187	4,024
Sweden	3,127	60,162	443	8,633	2,316	23,406	2,992	57,870	1,038	63,016	1,095	18,595	1,101	18,604
The Netherlands	171	10,272	353	11,059	112	3,555	216	9,563	262	12,837	119	8,360	119	8,364
United Kingdom	51	4,457	56	3,423	39	4,617	112	3,694	92	10,099	46	3,155	46	3,158

Note: Market capitalization is given in millions of monetary units. Monetary units are expressed in pounds sterling for the United Kingdom, in Danish crowns for Denmark, Swedish crowns for Sweden, and in euros for all other countries.

to 1,538 in Global Vantage; and in France, from 3,368 in Thomson Financial to 1,483 in Datastream. Except for Germany and the U.K., Thomson Financial always offers the widest firm-year coverage for all countries. The data coverage offered by Worldscope is virtually identical to that offered by Thomson Financial, except in the case of Greece. There is no clear picture as to which database offers the lowest firm-year availability as it varies substantially across countries. Thus, for academic research subscribers, Datastream offers the most restricted data availability for eight countries (Austria, Belgium, France, Ireland, Italy, Spain, the Netherlands and the U.K.), Global Vantage for three countries (Denmark, Germany and Greece), and Company Analysis for three countries (Finland, Portugal and Sweden). Clearly, as indicated above, such differences in the sample sizes must have an important impact on the results of our empirical analysis. If the samples are so different, it seems inevitable that the results will also vary, unless every sample is built to be a perfect representation of the whole population, which is unlikely.

One of the consequences of the coverage differences among the databases under study is the problem of introducing size bias into empirical research. It is expected that all databases will include the larger firms, while they will probably differ in their coverage of the smaller firms. Table 3 provides an insight into possible size bias. For each country, this table gives the median market capitalization of companies by database. Given the sample sizes set out previously in Table 2, we can now see that for eight out of the fourteen countries (Denmark, Finland, France, Germany, Italy, Portugal, Spain and the U.K.) the database with the largest number of observations is also the database with the smallest median firm size. Also, the largest median firm size in nine countries (Belgium, France, Ireland, Italy, Spain, the Netherlands, Finland, Sweden and Germany) corresponds to the database with the smallest data coverage. Therefore, those databases that cover fewer firms seem to focus on the largest ones, as could be expected. This size bias likely also introduces survivorship bias into the sample, as larger firms tend to survive longer than their smaller counterparts. Figure 1 represents graphically the relationship between firm size and coverage by the databases under study for the largest of the samples, that is, the U.K. We observe that the median market value decreases monotonically as firm coverage increases. Therefore, size bias appears to be an issue for databases covering the smallest number of firms, like Global Vantage, Osiris and Datastream. Researchers should consider the consequences of this potential bias in their research designs.

Table 4 shows the descriptive statistics of the per share variables used to estimate regression (1), which vary noticeably across databases. This is not surprising, considering the pronounced differences in the samples across databases.

Regression Results

For brevity, regression results using the seven databases are only provided for the two largest economies in the EU, those of the U.K. and Germany. These results are reported in Panels A of Tables 5 and 6. To give a straightforward indication of whether the differences between databases are significant, Panel B of each table contains a matrix indicating whether the differences in the coefficients between

Table 4

DESCRIPTIVE STATISTICS

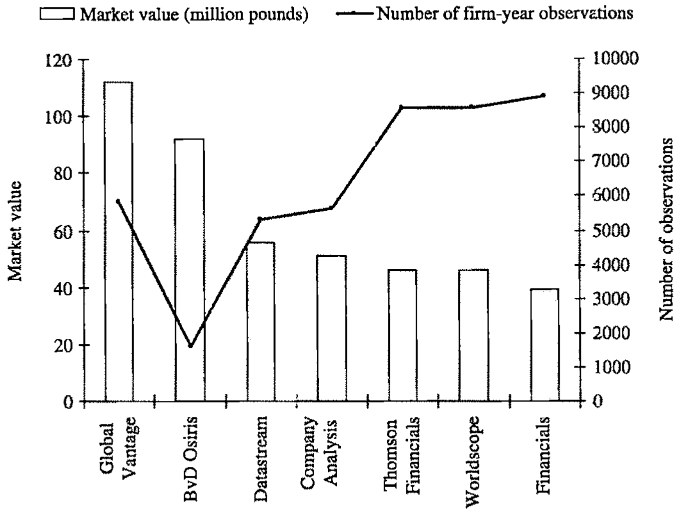
	Company Analysis		Datastream		Extel Financials		Global Vantage		BvD Osiris		Thomson Financial		Worldscope	
	Median	*SD*	Median	*SD*	Median	*SD*	Median	*SD*	Median	*SD*	Median	*SD*	Median	*SD*
Austria														
BVPS	36.8	77.1	42.9	132.4	25.7	49.5	39.4	74.7	37.0	87.2	20.9	38.9	20.9	38.9
Share price	47.8	86.5	48.8	80.6	38.3	52.9	53.5	89.0	34.5	37.2	36.3	60.3	36.3	60.3
EPS	2.6	10.2	3.7	12.1	1.5	7.7	3.3	11.1	2.7	8.0	1.8	6.8	1.8	6.8
Belgium														
BVPS	60.2	236.0	58.5	175.4	36.5	110.5	74.7	1,464.9	23.8	289.8	32.4	80.9	32.2	79.8
Share price	94.1	337.7	124.9	277.2	57.8	133.4	99.1	297.3	48.5	171.4	54.8	112.0	54.4	108.4
EPS	5.5	30.2	5.5	18.2	2.9	13.4	7.2	57.4	2.6	31.4	2.3	9.9	2.3	9.7
Denmark														
BVPS	333.0	1,184.8	317.7	2,158.42	190.2	288.5	324.1	807.8	250.2	257.5	171.9	234.3	171.9	234.3
Share price	460.0	9,559.1	430.0	11,857.4	238.9	2,663.2	390.0	758.4	258.0	500.5	240.0	1,055.4	240.0	1,055.4
EPS	28.2	135.5	29.1	234.4	14.5	41.7	29.4	97.5	21.8	29.5	13.2	36.2	13.2	36.2
Finland														
BVPS	12.8	13.8	13.0	24.4	6.9	5.7	12.6	22.7	9.2	7.1	4.8	6.2	4.8	6.2
Share price	18.7	21.0	13.8	20.0	9.1	10.7	15.8	21.3	10.5	9.2	7.5	11.3	7.6	11.3
EPS	1.3	2.2	1.4	3.0	0.6	1.3	1.5	3.1	1.1	1.2	0.5	1.3	0.5	1.3
France														
BVPS	35.2	76.6	37.8	69.7	24.8	42.5	36.3	167.3	18.1	45.2	23.8	43.1	23.8	43.1
Share price	60.2	124.9	70.0	120.4	38.1	50.1	61.5	103.3	32.0	41.2	35.8	53.2	35.8	53.2
EPS	3.3	9.2	3.8	9.0	2.0	4.7	3.2	21.7	1.6	3.8	1.9	5.2	1.9	5.2
Germany														
BVPS	72.4	79.8	72.8	102.1	15.8	40.6	64.0	62.6	13.7	53.2	12.7	39.7	12.7	39.7
Share price	138.0	146.7	145.7	278.5	28.6	107.6	133.7	162.3	23.8	127.9	28.0	130.2	28.0	130.3
EPS	5.0	13.6	3.9	14.1	1.1	7.0	4.4	11.8	1.3	5.8	0.9	7.6	0.9	7.6
Greece														
BVPS	4.2	44.7	3.7	6.7	2.6	2.6	4.2	5.9	1.5	3.1	1.3	1.8	1.2	1.8
Share price	16.0	739.0	7.6	11.8	9.3	11.2	12.2	16.4	5.6	11.7	3.0	8.3	2.1	3.2
EPS	0.5	15.1	0.4	1.0	0.3	0.6	0.7	1.1	0.2	2.0	0.1	0.3	0.1	0.3

Ireland														
BVPS	0.7	1.4	1.7	1.6	0.8	1.1	1.1	1.4	0.8	1.4	0.7	1.2	0.7	1.2
Share price	1.2	5.3	2.5	3.9	1.3	2.0	2.1	3.1	1.7	5.1	1.2	2.6	1.2	2.6
EPS	0.1	0.2	0.2	0.3	0.1	0.2	0.2	0.3	0.2	0.3	0.1	0.2	0.1	0.2
Italy														
BVPS	1.6	3.8	1.9	6.0	1.8	3.9	1.9	2.6	2.0	11.0	1.6	3.3	1.6	3.3
Share price	1.8	3.6	2.7	4.4	2.0	3.2	2.7	3.6	3.9	8.3	2.1	3.2	2.1	3.2
EPS	0.1	0.4	0.2	0.5	0.1	0.3	0.1	0.3	0.2	0.6	0.1	0.3	0.1	0.3
Portugal														
BVPS	9.2	3.8	10.6	217.6	2.1	3.9	10.6	5.7	2.4	2.6	6.6	7.2	6.6	7.2
Share price	16.3	13.0	11.1	221.1	5.0	6.8	12.5	12.4	3.4	5.7	5.2	6.7	5.2	6.7
EPS	0.9	0.8	0.6	35.6	0.2	0.4	0.6	1.1	0.2	0.3	0.2	1.1	0.2	1.1
Spain														
BVPS	10.2	10.9	9.1	28.4	5.8	10.3	10.5	12.1	4.6	5.6	5.3	9.6	5.2	9.6
Share price	15.1	20.6	15.0	31.4	7.4	13.0	15.3	20.6	9.6	10.1	7.2	11.1	7.2	11.1
EPS	1.0	1.7	0.9	4.6	0.5	1.4	0.9	1.7	0.5	0.8	0.4	1.2	0.4	1.2
Sweden														
BVPS	66.2	54.8	59.4	545.8	45.9	32.5	76.5	262.1	39.5	89.1	35.6	29.6	35.6	29.7
Share price	122.8	103.4	85.0	94.5	74.6	58.7	108.0	102.3	72.1	88.7	60.0	50.3	60.0	50.3
EPS	8.3	11.3	6.2	33.0	4.9	6.9	9.0	28.5	4.2	11.3	3.7	6.3	3.7	6.3
The Netherlands														
BVPS	13.0	31.8	13.2	15.3	9.4	83.4	12.4	19.0	6.5	9.7	8.8	15.2	8.8	15.2
Share price	26.1	43.0	29.0	27.1	16.5	67.8	26.4	28.5	16.7	13.9	16.0	20.6	16.0	20.6
EPS	2.0	4.5	2.2	2.6	1.3	4.4	1.9	2.9	1.1	1.5	1.2	2.2	1.2	2.2
United Kingdom														
BVPS	0.7	1.3	0.8	1.4	0.6	1.2	0.9	1.2	0.9	1.8	0.7	1.2	0.7	1.2
Share price	1.5	2.4	1.6	2.3	1.2	1.9	1.9	2.4	1.5	2.5	1.3	1.9	1.3	1.9
EPS	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.1	0.2	0.1	0.2

Notes: BVPS = book value of shareholders' equity per share, excluding preferred shares; Share price = market share price at the balance sheet date, *P*; EPS = bottom-line earnings per share. See exact variable definitions in Appendix A. All per share values are given in units of sterling pounds for the U.K., Swedish crowns for Sweden, Danish crowns for Denmark and euros for all other countries.

FIGURE 1

MEDIAN MARKET VALUE AND FIRM COVERAGE OF EACH DATABASE SAMPLE (U.K. ONLY)



pairs of databases are significant or not. The analysis of differences for the other countries is provided in Appendix A.

Panel A of Table 5 shows the results for the U.K. It can be observed readily that the coefficients and measures of fit change substantially across databases. The intercept ranges from 0.78 in Thomson Financial to 1.15 in Global Vantage; the coefficient of the book value of shareholders' equity (β) from 0.28 in Datastream to 0.69 in Worldscope; the earnings multiple (γ) from 3.82 in Extel Financials to 6.88 in Global Vantage; and, finally, the adjusted coefficient of determination from 0.43 in Global Vantage to 0.53 in Company Analysis. As observed in Panel A of Table 6, differences are even more pronounced for Germany, with the intercept ranging from 5.33 in Thomson Financial to 124.10 in Datastream, the coefficient of the book value of equity from 0.77 in Datastream to 2.45 in Thomson Financial, the earnings multiple from 1.44 in Worldscope to 3.29 in Datastream, and the adjusted R-squared from 0.15 in Datastream to 0.61 in Thomson Financial and Worldscope. Panels B of Tables 5 and 6 show the significance of these differences: we only fail to find significant differences between Extel Financials and Worldscope in the case of the U.K. and between Worldscope and Thomson Financial in the case of Germany. As can be observed in the results reported in Appendix A, for the remaining countries, only in the case of Ireland does the choice of database seem to be less of an issue as just Company Analysis offers significantly different results.

It should be noted that all intercepts and slope coefficients in Tables 5 and 6 have the expected signs, are statistically significant and take reasonable values.

TABLE 5

UNITED KINGDOM

Panel A: Regression results

	α *t*-stat	β *t*-stat	γ *t*-stat	Adj. R^2
Company Analysis	0.86	0.50	6.72	0.53
	28.87	*14.80*	*25.95*	
Datastream	1.04	0.28	6.80	0.48
	31.11	*7.41*	*25.34*	
Extel Financials	0.83	0.66	3.82	0.49
	40.55	*24.49*	*20.58*	
Global Vantage	1.15	0.37	6.88	0.43
	32.21	*9.92*	*23.74*	
BvD Osiris	1.12	0.54	4.67	0.39
	13.82	*5.42*	*7.69*	
Thomson Financial	0.78	0.68	4.33	0.52
	39.17	*23.52*	*19.73*	
Worldscope	0.79	0.69	4.18	0.51
	39.95	*24.12*	*19.14*	

Panel B: Significance of difference in coefficients α, β and γ across databases

	CA	DS	EF	GV	OS	TF
DS	α***,β***					
EF	β***,γ***	α***,β***,γ***				
GV	α***,β**	α**,β*	α***,β***,γ***			
OS	α***,γ***	β**,γ***	α***	γ***		
TF	α**,β***,γ***	α***,β***,γ***	γ*	α***,β***,γ***	α***	
WS	α*,β***,γ***	α***,β***,γ***	–	α***,β***,γ***	α***	–

Model: $P_t = \alpha + \beta BVPS_t + \gamma EPS_t + e_t$,

where P is the market share price, $BVPS$ is the book value of shareholders' equity per share, EPS is bottom-line earnings per share and t is the time period indicator.

All t-statistics are heteroskedasticity consistent. We estimate the statistical significance of the differences between coefficients in regressions using different databases as $\theta_1 - \theta_2$ divided by $\sqrt{\sigma_1^2 + \sigma_2^2}$, where θ_i is the estimated coefficient and σ_i the standard error for variable i. ***, ** and * indicate that the difference is significant at a 1%, 5% and 10% level. The following abbreviations have been used: CA = Company Analysis; DS = Datastream; EF = Extel Financials; GV = Global Vantage; OS = BvD Osiris; TF = Thomson Financial; WS = Worldscope.

This implies that none of the databases under analysis provides implausible data for the U.K. or Germany. This is also true for the Netherlands. However, this is not always the case, particularly for the smaller countries in the sample. For example, for Austria, γ is not significant using Datastream, Global Vantage,

TABLE 6

GERMANY

Panel A: Regression results

	α *t*-stat	β *t*-stat	γ *t*-stat	Adj. R^2
Company Analysis	75.57	0.91	2.13	0.40
	16.20	*13.67*	*7.10*	
Datastream	124.10	0.77	3.29	0.15
	19.75	*11.47*	*7.08*	
Extel Financials	9.42	1.84	1.61	0.57
	5.38	*23.68*	*2.82*	
Global Vantage	43.90	1.60	1.82	0.49
	9.91	*22.92*	*4.35*	
BvD Osiris	15.79	0.87	2.65	0.54
	7.06	*7.33*	*3.37*	
Thomson Financial	5.33	2.45	1.49	0.61
	3.69	*34.83*	*3.59*	
Worldscope	5.96	2.44	1.44	0.61
	4.22	*34.27*	*3.46*	

Panel B: Significance of difference in coefficients α, β and γ across databases

	CA	DS	EF	GV	OS	TF
DS	α***,γ**					
EF	α***,β***	α***,β***,γ**				
GV	α***,β***	α***,β***,γ**	α***,β**			
OS	α***	α***	α**,β***	α***,β***		
TF	α***,β***	α***,β***,γ***	α*,β***	α***,β***	α***,β***	
WS	α***,β***	α***,β***,γ***	β***	α***,β***	α***,β***	–

Model: $P_t = \alpha + \beta BVPS_t + \gamma EPS_t + e_t$,

where *P* is the market share price, *BVPS* is the book value of shareholders' equity per share, *EPS* is bottom-line earnings per share and *t* is the time period indicator.

All *t*-statistics are heteroskedasticity consistent. We estimate the statistical significance of the differences between coefficients in regressions using different databases as $\theta_1 - \theta_2$ divided by $\sqrt{\sigma_1^2 + \sigma_2^2}$, where θ_i is the estimated coefficient and σ_i the standard error for variable *i*. ***, ** and * indicate that the difference is significant at a 1%, 5% and 10% level. The following abbreviations have been used: CA = Company Analysis; DS = Datastream; EF = Extel Financials; GV = Global Vantage; OS = BvD Osiris; TF = Thomson Financial; WS = Worldscope.

Thomson Financial or Worldscope, and in the case of Datastream, it takes a negative sign. For the other countries, the results are less striking; however, the usage of Datastream, Company Analysis, and Global Vantage appears more problematic.

Specifically, the estimation based on Datastream results in an insignificant β for Denmark, Greece, Italy, Spain and Sweden, taking a negative value for Greece; while γ is negatively significant for Portugal. In the case of Company Analysis, β is not significant for Denmark, negative for Portugal and negatively significant for Belgium; while γ is not significant for Ireland and France; additionally, Company Analysis data result in negative intercepts for Ireland and Greece. Finally, using Global Vantage results in non-significant β coefficients for Finland, France and Portugal, being negative in the case of Portugal. On the other hand, Global Vantage is the only database that generates a positive intercept value for Denmark. While there are no clear patterns, the number of observations available is obviously a key factor in the analysis.

Consistent with the descriptive statistics, the regression results show that some of the databases provide very similar data. Specifically, Thomson Financial and Worldscope produce significantly different coefficients only for Greece, indicating the samples provided by these two databases are fairly consistent. Also, Extel Financials and Worldscope generate similar coefficients in eight out of the fourteen countries. Overall, the results observed for these fourteen member states of the EU confirm our prediction that the use of different databases to analyse the same country with the same research design yields significantly different coefficients.

Further Analysis: Matching Samples

The results detailed in the previous section are explained by differences in the samples across databases. However, it is unclear whether these results are (a) driven exclusively by heterogeneous database firm coverage (i.e., the samples contain different firms), or (b) partially attributable to differences in the figures available for the same firms in different databases, which could be caused by errors, by the adjustments or standardization made to as-reported data or by a different variable definition among databases.[15]

We analyse the common observations in all databases to find out to what extent, if at all, the databases offer different observed values for the same firms. This test sets up a rather unrealistic scenario because in practice researchers do not normally have access to all the databases, and once a database is chosen, no adjustments are made to the sample on the basis of observations matching those in other databases, regardless of whether other databases are available or not. This is why, for our main analysis, we work with all available observations, in an attempt to replicate as closely as possible the decisions made by a researcher who has chosen a particular database. The study by Land and Lang (2002) is one example of this pattern of behaviour. They claim to use Global Vantage, instead of Datastream or Worldscope, because of wider data availability. However, once they have chosen Global Vantage, they simply use all observations available in that database, not constraining their sample to common observations across the three databases. However, even though our objective is to replicate what the researcher would do and then determine whether the results would change using a different database, constraining the samples to common observations across all databases will provide additional evidence on the observed differences and whether they can be attributable, at least partially, to differences in the figures available for the same firms in alternative databases.

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[15] As can be seen in Appendix B, variable definition is probably not an issue in our analysis.

Observations are matched across the different databases using the SEDOL code. BvD Osiris is excluded in the matching, as it would constrain the sample to the period 1995–99, and would mean losing six years of observations. Table 7 shows the median values of shareholders' equity, market capitalization and net income for the firms in common, both in terms of the figures appearing in financial statements and on a per share basis. Table 7 also shows the number of common observations. Overall, we have approximately 4,000 common observations, of which approximately a half are for U.K. firms. After matching the samples, we find that for some countries it would not be feasible to perform any additional analysis, as the resulting sample is very small. This is the case for Ireland, Greece and Portugal.

The descriptive statistics in Table 7 show that the observed values (both in terms of the figures appearing in financial statements and on a per share basis) are similar across databases, and appear much closer than for the unmatched sample. Analysing these descriptive statistics, we can identify two clear groups or clusters with extremely similar numbers. In fact, there appear to be two main sources of data. On the one hand, Extel Financials, Thomson Financial and Worldscope offer very similar values for the three variables analysed, both in terms of the financial statement amounts and on a per share basis. The other three databases, Company Analysis, Datastream and Global Vantage, also offer similar values, and with regard to the financial statement variables there is in fact little difference across the two groups of databases. However, some marked differences remain with regard to the per share data, which is likely to be attributable to differences in the number of shares reported as common shares outstanding at the balance sheet date across the different databases.

Clearly, these descriptive statistics indicate that the use of a matched sample will probably reduce the differences between estimated regression coefficients. Indeed, when we replicate the regression analysis using the common sample across the six databases, only for Germany do the differences, albeit reduced, remain substantial and significant. For all other countries, the differences between coefficients are much less pronounced.[16] In fact, for two countries, Italy and Spain, there is not a single significant difference in the coefficients across the databases. Some differences still remain in the other countries, although much less pronounced than with the unmatched samples.

There is still considerable accounting method diversity across the EU member states under analysis. Some of the databases attempt to create comparable numbers between firms and across countries by standardizing accounting values, while others prefer to present data as reported. The databases that standardize values do not disclose information on how this procedure is carried through,

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[16] These results are available from the authors upon request.

Table 7

MEDIAN VALUES OF SELECTED VARIABLES FOR THE MATCHED SAMPLE

	Company Analysis		Datastream		Extel Financials		Global Vantage		Thomson Financial		Worldscope		N. obs
	Entity	Per share	Entity	Per share	Entity	Per share	Entity	Per share	Entity	Per share	Entity	Per share	
Austria													
Shareholders' equity	352.0	38.6	337.2	44.6	352.0	32.2	351.1	38.6	352.0	32.1	352.0	32.1	
Market capitalization	440.0	53.8	440.0	53.8	440.0	39.7	450.8	53.5	440.4	39.7	440.4	39.7	77
Net income	30.4	3.3	19.5	3.7	30.4	2.1	24.0	3.0	23.2	2.2	23.2	2.2	
Belgium													
Shareholders' equity	430.9	63.6	432.2	64.3	436.3	22.4	423.8	67.0	429.7	22.4	429.7	22.4	
Market capitalization	937.6	164.7	842.2	165.1	968.0	46.2	901.0	160.2	927.1	43.0	927.1	43.0	44
Net income	52.6	9.4	52.0	9.2	54.6	2.3	51.7	9.7	52.6	2.2	52.6	2.2	
Denmark													
Shareholders' equity	1,126.0	277.6	1,104.7	315.8	1,126.0	191.5	1,104.7	315.8	1,104.7	180.0	1,104.7	180.0	
Market capitalization	1,557.9	455.0	1,484.6	455.0	1,640.4	268.0	1,502.6	380.0	1,740.8	260.0	1,740.8	260.0	145
Net income	111.6	27.9	118.9	31.3	109.5	16.2	115.9	31.3	111.6	15.9	111.6	15.9	
Finland													
Shareholders' equity	375.2	10.7	383.3	11.7	375.2	7.6	380.1	10.8	364.3	7.6	364.3	7.6	
Market capitalization	535.8	11.9	513.6	11.9	535.8	9.8	549.7	11.1	575.0	9.8	575.0	9.8	83
Net income	33.5	1.0	33.5	1.1	33.5	0.8	36.6	1.0	35.4	0.8	35.4	0.8	
France													
Shareholders' equity	123.8	37.1	121.2	35.6	123.8	22.9	121.9	36.7	122.0	23.1	122.0	23.1	
Market capitalization	194.0	59.5	188.8	60.0	191.1	38.1	194.9	61.2	192.7	41.3	192.7	41.3	442
Net income	10.0	3.3	9.5	3.3	9.5	2.1	10.0	3.3	10.2	2.1	10.2	2.1	
Germany													
Shareholders' equity	129.8	68.9	131.8	71.4	129.0	13.3	130.3	67.5	129.8	12.1	129.8	12.1	
Market capitalization	275.7	136.5	253.6	131.4	257.5	26.3	265.9	136.6	273.0	25.6	273.0	25.6	619
Net income	12.6	4.7	12.5	4.8	12.2	1.2	12.3	4.8	12.8	1.1	12.8	1.1	
Greece													
Shareholders' equity	191.0	9.6	201.1	10.5	191.0	4.0	205.4	7.8	195.0	3.8	100.7	2.3	
Market capitalization	453.0	17.3	469.8	17.9	453.0	7.3	492.8	19.1	453.4	9.8	242.7	5.1	11
Net income	25.4	0.5	25.0	0.6	25.4	0.4	27.9	0.6	24.1	0.4	15.4	0.3	

TABLE 7

(CONTINUED)

	Company Analysis		Datastream		Extel Financials		Global Vantage		Thomson Financial		Worldscope		N. obs
	Entity	Per share	Entity	Per share	Entity	Per share	Entity	Per share	Entity	Per share	Entity	Per share	
Ireland													
Shareholders' equity	241.5	0.8	141.2	0.8	139.5	0.8	93.6	0.8	139.0	0.8	139.0	0.8	3
Market capitalization	315.8	1.8	192.7	1.8	277.2	1.8	231.6	2.1	277.2	1.6	277.2	1.7	
Net income	18.6	0.2	22.3	0.3	22.3	0.2	21.2	0.3	22.3	0.2	22.3	0.2	
Italy													
Shareholders' equity	241.5	2.6	247.2	2.6	241.5	2.7	239.5	2.8	240.0	2.6	240.0	2.6	74
Market capitalization	315.8	4.9	285.4	4.9	315.8	4.1	326.0	5.6	382.6	4.4	382.6	4.4	
Net income	18.6	0.2	17.5	0.2	18.6	0.2	18.7	0.2	18.6	0.1	18.6	0.1	
Portugal													
Shareholders' equity	171.0	10.0	171.0	10.5	171.0	2.2	172.4	10.0	171.0	2.2	171.0	2.2	15
Market capitalization	265.9	22.0	268.0	22.0	265.9	8.2	268.0	22.4	256.6	8.1	256.6	8.1	
Net income	10.9	1.4	10.9	1.2	10.9	0.4	11.1	1.5	10.9	0.3	10.9	0.3	
Spain													
Shareholders' equity	197.8	9.0	202.5	9.3	197.8	4.4	199.4	9.5	197.8	4.3	197.8	4.3	137
Market capitalization	517.9	15.3	517.9	15.3	517.9	7.2	522.1	15.7	517.9	7.2	517.9	7.2	
Net income	28.2	0.9	28.2	0.9	28.2	0.4	28.5	0.9	28.2	0.4	28.2	0.4	
Sweden													
Shareholders' equity	701.3	63.9	701.3	72.4	701.3	49.3	701.3	72.4	701.3	46.4	701.3	46.4	83
Market capitalization	1,654.3	117.5	1,653.6	117.5	1,654.3	96.0	1,653.6	107.1	1,757.9	86.6	1,757.9	86.6	
Net income	103.7	8.0	103.7	9.1	103.7	6.8	103.7	8.9	103.7	6.5	103.7	6.5	
The Netherlands													
Shareholders' equity	144.5	12.5	145.3	13.4	144.5	8.9	144.8	12.5	144.4	9.1	144.4	9.1	212
Market capitalization	299.1	25.4	298.6	25.4	299.1	20.3	300.6	25.5	297.5	20.3	297.5	20.3	
Net income	24.3	2.2	24.3	2.1	24.3	1.6	24.1	2.1	23.8	1.5	23.8	1.5	
United Kingdom													
Shareholders' equity	44.0	0.9	45.0	0.9	45.4	0.7	43.6	0.9	42.6	0.7	42.6	0.7	2,039
Market capitalization	100.9	2.1	99.6	2.0	103.7	1.7	101.8	2.1	101.3	1.6	101.3	1.6	
Net income	5.9	0.1	5.8	0.1	5.9	0.1	5.9	0.1	5.8	0.1	5.8	0.1	

Note: Entity values are in millions of monetary units. Per share values are in monetary units. Monetary units are in sterling pounds for the U.K., Swedish crowns for Sweden, Danish crowns for Denmark and in euros for all other countries. See exact variable definitions in Appendix B.

and thus, some differences across databases could be due to this standardization process. However, we do not observe any clear pattern in terms of differences between those databases that claim to standardize the data and those that claim to present data as reported and, overall, the results suggest that the differences introduced by the adjustments made to the as-reported data in some of the databases are not sufficiently important to inhibit comparability across databases, at least as far as shareholders' equity, earnings and market value are concerned. Finally, regarding the reliability of the data provided, the results suggest that, for the items under consideration, errors are not a significant problem across the databases examined. This conclusion, however, might not apply to other less commonly used items.

SUMMARY AND CONCLUSIONS

We address the question whether database choice affects the results and findings of international empirical research on accounting. We analyse the results of running a simple empirical adaptation of the Ohlson (1995) model for fourteen EU member states, obtaining the data from seven widely used databases: Datastream, Global Vantage, Company Analysis, Worldscope, Thomson Financial, Extel Financials and BvD Osiris.

The results show that parameters and measures of fit from a simple empirical model regressing book value of shareholders' equity and earnings on market value of the firm differ significantly across databases. There are two main conclusions. First, differences between databases exist and lead to differences in the results of even a very simple empirical study using key accounting variables. The results suggest that these differences are mainly attributable to heterogeneous firm-coverage across databases. When focusing on the common observations across all databases, the differences disappear almost completely. Second, our results are shown to be relevant both for researchers using empirical data in a European context, and also for academic institutions with an interest in investing in new data sources. Differences observed across databases also pose questions regarding the generalizability, reliability and comparability of the results of empirical studies using European accounting data. Which database offers more generalizable data is beyond the scope of the present study, but our results suggest that this could be an interesting issue to pursue further, because the differences we find are mainly attributable to variation in firm coverage across databases, and one might think that researchers should use the data set that gives a more accurate picture of the whole population. Regarding reliability, although our results suggest that differences in the observed values of common items across databases are minimal, further research on data reliability could also be of interest to accounting academics.

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APPENDIX A

SIGNIFICANCE OF THE DIFFERENCE IN COEFFICIENT ESTIMATES α, β AND γ ACROSS DATABASES FOR OTHER COUNTRIES INCLUDED IN THE SAMPLE

	CA	DS	EF	GV	OS	TF
Austria						
DS	$\alpha^{***},\beta^{***},\gamma^{*}$					
EF	–	α^{***}				
GV	β^{**}	α^{***},β^{***}	β^{***}			
OS	α^{**},β^{**}	α^{***}	α^{**}	β^{***}		
TF	α^{***},β^{***}	α^{***},β^{***}	α^{***},β^{***}	α^{**}	α^{*},β^{***}	
WS	α^{***},β^{***}	α^{***},β^{***}	α^{***},β^{***}	α^{**}	α^{*},β^{***}	–
Belgium						
DS	–					
EF	α^{***}	–				
GV	α^{***},β^{***}	α^{***},β^{***}	$\alpha^{***},\beta^{***},\gamma^{*}$			
OS	β^{***}	β^{**}	α^{***},β^{***}	α^{***}		
TF	α^{***}	–	β^{*}	$\alpha^{***},\beta^{***},\gamma^{*}$	α^{***},β^{***}	
WS	α^{***}	–	–	$\alpha^{***},\beta^{***},\gamma^{*}$	α^{***},β^{***}	–
Denmark						
DS	–					
EF	–	α^{**}				
GV	α^{***}	α^{***}	$\alpha^{***},\beta^{***},\gamma^{***}$			
OS	α^{**},γ^{*}	α^{***}	$\alpha^{***},\beta^{***},\gamma^{***}$	$\alpha^{***},\beta^{**},\gamma^{**}$		
TF	α^{***}	α^{***}	$\alpha^{***},\beta^{**},\gamma^{**}$	α^{***},β^{***}	α^{**},γ^{**}	
WS	α^{***}	α^{***}	$\alpha^{***},\beta^{**},\gamma^{**}$	α^{***},β^{***}	α^{**},γ^{**}	–
Finland						
DS	$\alpha^{*},\beta^{***},\gamma^{*}$					
EF	α^{**}	α^{***},β^{**}				
GV	α^{***},β^{***}	α^{**}	α^{***},β^{***}			
OS	β^{***}	α^{**}	α^{**},β^{***}	α^{***}		
TF	α^{***}	α^{***},β^{***}	–	α^{***},β^{***}	α^{***},β^{***}	
WS	α^{***}	α^{***},β^{***}	–	α^{***},β^{***}	α^{***},β^{***}	–
France						
DS	–					
EF	$\alpha^{***},\gamma^{***}$	$\alpha^{***},\gamma^{***}$				
GV	$\alpha^{***},\beta^{***},\gamma^{***}$	$\alpha^{***},\beta^{***},\gamma^{***}$	$\alpha^{***},\beta^{***},\gamma^{**}$			
OS	α^{***},β^{***}	α^{***},β^{***}	β^{***},γ^{***}	$\alpha^{***},\beta^{***},\gamma^{***}$		
TF	$\alpha^{***},\gamma^{***}$	$\alpha^{***},\gamma^{***}$	α^{*},β^{*}	$\alpha^{***},\beta^{***},\gamma^{*}$	β^{***},γ^{***}	
WS	$\alpha^{***},\gamma^{***}$	α^{***},γ^{**}	α^{*},β^{*}	α^{***},β^{***}	β^{***},γ^{***}	–
Greece						
DS	$\alpha^{**},\beta^{**},\gamma^{*}$					
EF	α^{**},β^{**}	α^{**},β^{***}				
GV	$\alpha^{**},\beta^{*},\gamma^{*}$	α^{**},β^{***}	–			
OS	α^{**},β^{*}	α^{***},β^{***}	α^{**},β^{*}	–		
TF	α^{**},β^{**}	$\alpha^{***},\beta^{***},\gamma^{*}$	α^{**}	–	α^{**}	
WS	α^{**},β^{**}	α^{***},β^{***}	α^{***}	α^{**},β^{***}	α^{***}	$\alpha^{***},\beta^{**},\gamma^{*}$
Ireland						
DS	α^{*}					
EF	α^{**}	–				
GV	α^{***},β^{*}	–	α^{*}			

APPENDIX A

(CONTINUED)

	CA	DS	EF	GV	OS	TF
OS	–	–	–	–		
TF	α***	–	–	–	–	
WS	α***	–	–	–	–	–
Italy						
DS	α***					
EF	β*	α***,β***				
GV	β***	α***,β***	β***			
OS	α*	–	α***	α***,β**		
TF	β***,γ*	α***,β***	–	–	α***	
WS	β***	α***,β***	–	–	α***	–
Portugal						
DS	α***,β***,γ***					
EF	α**,β*	β***,γ***				
GV	–	α***,β***,γ***	α***,β***			
OS	α***	β**,γ**	α**	α***		
TF	α***,γ***	β***,γ***	γ***	α***,β***,γ***	α**,γ*	
WS	α***,β*,γ***	β***,γ***	γ***	α***,β***,γ***	α**,γ*	–
Spain						
DS	α***,γ**					
EF	α**,β**,γ***	α***,β*				
GV	–	α***	α***,γ**			
OS	γ*	α***	α**	–		
TF	α**,β*,γ***	α***	–	α***,γ***	α*	
WS	α**,β**,γ***	α***,β*	–	α***,γ***	α**	–
Sweden						
DS	α***,β***,γ***					
EF	α***,β**	α***,β***,γ***				
GV	α***,β***,γ***	β**	α***,β***,γ***			
TF	α***,β***,γ**	α***,β***,γ***	γ*	α***,β***,γ***	α***,β***	
WS	α***,β***,γ**	α***,β***,γ***	–	α***,β***,γ***	α***,β***	–
The Netherlands						
DS	α*,β***,γ***					
EF	α***	α***,β**				
GV	α**,β***,γ**	–	α***			
OS	β***	γ*	α***,β**	α*,β*		
TF	α***	α***,β***,γ***	–	α***,β*	α***,β***	
WS	α***	α***,β***,γ***	–	α***,β*	α***,β***	–

Model: $P_t = \alpha + \beta BVPS_t + \gamma EPS_t + e_t$,

where P is the market share price, *BVPS* is the book value of shareholders' equity per share, *EPS* is bottom-line earnings per share and t is the time period indicator.

All t-statistics are heteroskedasticity consistent. We estimate the statistical significance of the differences between coefficients in regressions using different databases as $\theta_1 - \theta_2$ divided by $\sqrt{\sigma_1^2 + \sigma_2^2}$, where θ_i is the estimated coefficient and σ_i the standard error for variable i. ***, ** and * indicate that the difference is significant at a 1%, 5% and 10% level. The following abbreviations have been used: CA = Company Analysis; DS = Datastream; EF = Extel Financials; GV = Global Vantage; OS = BvD Osiris; TF = Thomson Financial; WS = Worldscope.

APPENDIX B

VARIABLE DEFINITION BY DATABASE

	Company Analysis	Datastream	Extel Financials	Global Vantage	BvD Osiris	Thomson Financial	Worldscope
BVPS (book value per share)	[{eq} – {cq.s.ps}]/ {mkt.nsh}	DS305/ DSIC	(EX.ShareholdersEquity-EX.ShareholdersEquityPreferShare)/EX.CommonSharesOutstanding	(G193–G268)/ CSHO	Shareholders Funds (35902)/No of outstanding shares (28)	TF.TotalCommonEquity/ TF.CommonShares-Outstanding	WS.TotalCommonEquity (03501)/WS.Common-SharesOutstanding (05301)
P (share price)	[mkt.shpc]	DSMV/ DSIC	EX.PriceClose	Prccm	Mark Cap (35907)/ No of outstanding shares (28)	TF YrEndMarketCap/ TF.CommonShares-Outstanding	WS.PriceClose (05001*)
EPS (earnings per share)	{ni}/ {mkt.nsh}	(DS625 + DS193)/ DSIC	EX.NetIncome/EX.CommonSharesOutstanding	(G378 + G381)/ CSHO	Net Income (35904)/ No of outstanding shares (28)	TF.NetIncome/ TF.CommonShares-Outstanding	WS.NetIncome (01751)/ WS.CommonShares-Outstanding (05301)

Note: We also define EPS for Thomson Financial as (TF.NetIncome + TF.ExtraItemsAndGnLsSaleofAsset)/TF.CommonSharesOutstanding, and for Worldscope as (WS.NetIncome + WS.ExtraItemsAndGnLsSaleofAsset)/WS.CommonSharesOutstanding. The reason for using these additional definitions for EPS in these two databases is that it is not clear in the database manual definitions whether or not TF.NetIncome and WS.NetIncome include extraordinary items. Regardless of the definition used, the results do not change qualitatively.

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Discussion of García Lara, García Osma and Gill de Albornoz Noguer

This study by Juan Manuel García Lara, Beatriz García Osma and Belén Gill de Albornoz Noguer (hereafter GGG) draws on the growing importance of international accounting research, particularly empirical studies based on cross-country samples. Numerous studies have now emerged in the literature examining a variety of international accounting issues, including: the institutional impacts on accounting earnings (see, e.g., Ball *et al.*, 2000); the value relevance of international GAAP, particularly earnings numbers (see, e.g., Bandyopadhyay *et al.*, 1994; Harris *et al.*, 1994; Barth and Clinch, 1996); the timeliness and conservativeness of earnings (see, e.g., Pope and Walker, 1999); the effects of accounting method diversity (see, e.g., Joos and Lang, 2004); the economic consequences of increased disclosure (see, e.g., Leuz and Verrecchia, 2000); and investor protection and corporate governance in the international arena (see, e.g., La Porta, 1997; Defond and Hung, 2004).

The study is well positioned in this literature because it highlights the importance of how empirical databases which underpin much international accounting research are best interpreted and applied. GGG note that commercial opportunities for an increasing number of data providers have grown in tandem with the proliferation of empirical research over the years. There is now intense competition among these providers to improve the range, depth, timeliness and reliability of financial and market data, as well as firm-specific coverage both in cross-sectional and time-series contexts. Most major data providers have now moved to comprehensive international coverage with company financial information provided on an as-reported and/or a standardized basis.

As GGG observe, an established tradition has emerged within the U.S. and U.K. with respect to the use of various financial databases for empirical accounting research. Compustat database (produced by Standard and Poor's) is by far the most common financial database used by U.S. academics, while Datastream has been more commonly used in many U.K.-based accounting studies. In Australia, AspectHuntley Pty Ltd has been widely used as a source of financial data for many local studies (AspectHuntley has had licensing arrangements with the Australian Stock Exchange for the distribution of company financial data). However, there has been an increasing move to international database sources in Australia, such

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as Thomson Financial's One Banker product.[1] According to GGG, no such tradition in the use of financial databases has emerged in international accounting research—as they note, researchers in this area have tended to either combine databases or use Global Vantage, which provides standardized items based on U.S. GAAP and accounting standards (although it needs to be acknowledged that most international accounting studies, particularly those published by U.S. academics, use either Global Vantage or Worldscope, which suggests that a tradition may well be developing in the use of databases with international coverage).

Against this background, the authors briefly discuss nine major databases that provide various financial and market data on companies internationally: these are Datastream, Global Vantage, Company Analysis, Worldscope, Thomson Financial, Extel Financials, BvD Osiris, Bankscope and Amadeus. The authors note that there is minimal prior research on how differences across financial databases (which can emanate from such factors as heterogeneity in coverage across firms) can potentially affect the results of empirical studies. The authors hypothesize that database choice can affect the comparability and generalizability of empirical results. To test this hypothesis, the authors replicate a simple capital market analysis on a number of samples drawn from fourteen European countries over the period 1990–97, using seven of the abovementioned databases: Datastream, Global Vantage, Company Analysis, Worldscope, Thomson Financial, Extel Financials, BvD Osiris (the authors exclude BankScope because it specifically relates to financial institutions and Amadeus is excluded because it mainly specializes in private firms). Countries included in the sample are confined to Europe, and include all EU member states prior to the May 2004 extension except Luxemburg, namely, Austria, Belgium, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Portugal, Spain, Sweden, the Netherlands, and the United Kingdom. To test for differences in regression parameter estimates across the seven databases, the authors use a simple adaptation of Ohlson's (1995) equity valuation model, which involves a straightforward regression of book value of equity and earnings onto the market value of the firm.

Initially, the authors establish that differences in firm coverage across databases can potentially introduce size bias. Databases which cover fewer firms tend to focus on larger entities, resulting in higher firm size medians (obviously there is a further issue of survivorship bias as larger firms tend to survive longer than smaller concerns). As expected, the authors find that the median market value of firms decreases monotonically as firm coverage increases—as a result of which, any potential size bias becomes more of an issue for databases which cover the fewest number of firms (such as Global Vantage, Osiris and Datastream). To correct for possible size-related effects, the authors re-estimate their regression models on a sample of firms matched across each database (i.e., each individual firm is matched across each database). The analysis of the pooled regression results indicates a number of significant differences in the intercepts, regression coefficients and model-fit statistics across databases. Further investigated is whether results are due to heterogeneous firm coverage across databases, or perhaps attributed to factors such as errors or adjustments made to as-reported data across databases. To achieve this, the authors match each firm observation using the SEDOL code and find that the differences in regression coefficients are substantially reduced, although they provide no evidence on whether the differences across slope coefficients and intercepts are still statistically significant (they do note for Italy and Spain that the regression coefficients are identical across all databases).

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[1] At the time of writing this discussion paper, AspectHuntley was fully acquired by Morningstar Inc.

Overall, this study addresses a pertinent question in empirical accounting research, and one which is very frequently overlooked by researchers working under the 'publish or perish' tocsin of an increasingly intense and competitive academic publishing market.

Issues Needing Clarification or Additional Analysis

The article's basic motivation and objectives are admittedly limited in scope. Nevertheless, the findings should be useful to researchers because the results, albeit very restricted, raise initial doubts about the comparability, generalizability and reliability of the various databases examined. Clearly, much more information would be required in order to assist research institutions in selecting which database/s to purchase. If the issues raised here by GGG could be examined more extensively, the conclusions would provide a potentially very useful basis for assessing differences in databases from an acquisition perspective. However, these questions are only tangential to the current focus of this article. The study mainly shows how differences in firm coverage can affect regression results using a relatively simple equity valuation model specification. As the authors indicate, if you match firms across databases, these differences virtually disappear. While this is a worthwhile finding, alerting researchers to the intuitive (but sometimes disregarded) point that combining databases with heterogeneous firm coverage may lead to different results, there is clearly also a need for further analysis concerning the comparability of the databases under investigation. For instance, more information would be required in order to compare the financial and market coverage of such databases, variable definitions and impacts of accounting method diversity, ease of use, cost and so on.

The study also provides limited evidence on whether the results based on any particular database are more generalizable than the others. For instance, additional insight would be welcomed from future studies in this vein on whether any of the available databases provide a better basis for statistical sampling and generalization or better satisfy the asymptotic assumptions of various econometric models and tests.

While the paper does not examine the reliability of different databases *per se*, which might include issues such as error rates across databases, the authors go to some lengths to discuss the literature covering the impacts of database errors, but this idea is not developed any further. Moreover, while the authors conclude that matching observations produces nearly identical regression results (which might suggest that errors are not a significant problem across the seven databases examined), this conclusion could only be reached, at best, for the three variables under study.

Arguably questions regarding generalizability and reliability are the pertinent ones to examine in any decision to select among competing databases (particularly those that are relatively new on the market and have not been used or trialled extensively in prior research). The fact that the authors' results are virtually identical after matching firm-specific observations could even imply that choice of database is not a significant issue—it is merely a question of the preferred depth of firm coverage that the researcher seeks (all other things being equal).

GGG justify their decision to test database heterogeneity using a simple equity valuation model on two grounds: (a) this is a specification commonly used in capital markets research, and (b) finding differences amongst databases in the most parsimonious model will 'strongly support the prediction that database choice has important implications for research'.

The authors are clearly right to point out that market prices, earnings and book value of equity are key variables utilized in many capital market studies. These variables are likely to be very well covered by data providers and hence we might expect them to be reported with a high level of reliability across all major databases. Can the same be assumed for other less commonly used financial variables? In fact, many international empirical studies explore a much wider range of variables, which have included: cash flow from operations, interest capitalization, foreign exchange gains and losses, deferred tax balances, debt levels, goodwill, pension costs, total assets, sales growth, start-up costs and write-downs of investments, not to mention non-financial variables such as CEO turnover (to take an example from the corporate governance literature), investor protection proxies and a potentially wide range of company profile variables (representative studies include: Jacobson and Aaker, 1993; Alford *et al.*, 1993; Harris, 1994; Joos and Lang, 1994; Bandyopadhyay *et al.*, 1994; Barth and Clinch, 1996; La Porta *et al.*, 1997; Pope and Walker 1999; Leuz and Verrecchia, 2000).

This point is recognized by the authors: 'If discrepancies are found among databases using a parsimonious model, then we can safely assume that the differences in the results would be even more significant if we were to use less common data items'. Indeed, the results of this study could arguably be enhanced by replicating one of the major international accounting studies (such as one of those cited above) which have typically used a broader range of financial and contextual variables and more sophisticated research designs, in order to establish if there are substantial differences in empirical results across financial databases. Any significant differences across empirical results could be attributed to a range of factors (such as error rates or accounting method diversity), in addition to firm coverage. This would also provide the opportunity to introduce further refinements to test for potential differences across databases—industry partitions, for instance, since the authors point out that differences in industry classifications across databases have been shown in the literature to impact on empirical results across studies (see, e.g., Krishnan and Press, 2003).

As it stands, the results of the study may certainly dissuade researchers from using combinations of databases to develop a cross-country analysis, but this approach is fraught with potential problems, not to mention the potential costs of using multiple databases and the issue of handling accounting method diversity across countries (particularly where standardization options are not available). In fact, many researchers in this field prefer to use a single database, such as Global Vantage or Worldscope, at least in part because these databases provide a methodology for standardizing financial variables across countries.

Moving to the sample, the study reports in Tables 5 and 6 the results for the largest European economies in the sample: U.K. and Germany. This approach makes sense in that researchers often focus on these two major jurisdictions in the EU, given the large number of member states. As a consequence, however, analysis relating to other European countries receives less attention, notwithstanding in this case a number of inconsistencies in the reported results mainly affecting smaller European countries. The current sample is confined to European countries. However, international accounting studies of this genre cover other jurisdictions—particularly U.S. markets. Furthermore, Australian public companies are increasingly being used in various international comparative studies. A further issue to consider when widening the sample of reporting jurisdictions to countries outside of Europe is the issue of accounting method diversity. Not all databases provide standardized measures and, given the institutional and regulatory differences across countries (see, e.g., Joos and Lang, 1994: Basu, 1999), we would expect accounting method diversity across countries to be quite pronounced.

Turning to the analysis and results, the authors find significant differences in the intercepts and parameter estimates across databases (where observations are not matched). However, it should be noted that all *t*-values are reported as statistically significant and the coefficients have the same signs across all models. Hence, even if we base our conclusions on the raw or unmatched observations, we cannot draw fundamentally different conclusions about the results of each model.[2]

Many empirical studies in accounting report regression results based on the pooled observations, yet it would be interesting to have some idea of how the models behave in a cross-sectional analysis. It is worth noting that, while many researchers now tend to present White's robust standard errors in the regression results, the use of pooled observations can violate the independence assumption, particularly if autocorrelation is present in the error structure. I would suggest the use of Newey–West robust standard errors for pooled data where observations are assumed to be independent across years (see Newey and West, 1987). This test presents a consistent variance-covariance matrix in the presence of both heteroskedasdicity and autocorrelation (see Greene, 2005).

A final question on the results can be raised. Since not all databases standardize for accounting method diversity across countries, do the near identical results on the matched analysis presuppose that there are no accounting method differences in the determination of income and the book value of equity to be concerned about across reporting jurisdictions in Europe? Further research into this issue would be both interesting and useful, particularly given prior studies which indicate that accounting method diversity can have a significant impact on various financial metrics and in stock market valuation of accounting data, especially in the context of the EU (see, e.g., Joos and Lang, 1994).

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[2] The adj. *R*-square of .15 for Datastream on the German data is a notable anomaly. Note also that, while the paper provides a formal test of difference in regression coefficients, it provides no formal test of differences in *R*-square values across regression models. A significance test useful in this context is outlined in Cramer (1987).

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HOLGER DASKE AND GÜNTHER GEBHARDT

International Financial Reporting Standards and Experts' Perceptions of Disclosure Quality

From 2005, over 7,000 listed firms in the European Union and many more around the world are required to adopt International Financial Reporting Standards (IFRS). The introduction of a uniform accounting regime is expected to ensure greater comparability and transparency of financial reporting around the world. However, recent research has questioned the quality of financial statements prepared under IFRS standards, particularly in the presence of weak enforcement mechanisms and adverse reporting incentives (Ball *et al.*, 2003). In this paper, we assess the quality of the financial statements of Austrian, German and Swiss firms which have already adopted internationally recognized standards (IFRS or U.S. GAAP). The study makes use of available disclosure quality scores extracted from detailed analyses of annual reports by reputed accounting scholars ('experts'). This work complements other contemporary research on the quality of IFRS financial statements where the properties of earnings are used as an evaluation metric (Barth *et al.*, 2005). Our evidence shows that disclosure quality has increased significantly under IFRS in the three European countries we analyse. This result holds not only for firms which have voluntarily adopted IFRS or U.S. GAAP, but also for firms which mandatorily adopted such standards in response to the requirements of specific stock market segments. Although we cannot establish direct causality due to the inherent self-selection issues for most of our sample firms, the evidence shows that the quality of financial reports has increased significantly with the adoption of IFRS.

Key words: Best annual report contests; Disclosure; Information quality; International Financial Reporting Standards (IFRS).

From 2005, over 7,000 listed firms in the European Union and many more around the world will have to adopt International Financial Reporting Standards (IFRS). The mandatory adoption of IFRS has been motivated by the need to ensure greater comparability and a higher transparency and quality of financial reporting across the EU member states (see EC Regulation No 1606/2002). This key step on

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the road towards a global set of uniform accounting standards has inspired other standard setters around the world, such as the Australian Accounting Standards Board (AASB), to adopt IFRS alike.

However, the jury is still out on the desirability of such a significant switch of accounting regime. Despite general concerns about the abolition of local accounting standards customized towards the needs of a particular institutional environment (e.g., Schildbach, 2004), there is still considerable debate about the expected quality of financial statements prepared under IFRS standards, both in practice and academia. Consider the prominent example of the French Premier Jacques Chirac, who expressed firm resistance to the adoption of IFRS (AccountancyAge, 2003).

Academics also present different views on the quality of the financial statements of firms adopting IAS/IFRS. Most notably, Ball *et al.* (2003) illustrate, in the case of four East Asian countries, that adopting 'IAS-type' accounting standards will not necessarily lead to higher quality reporting in the presence of lax enforcement mechanisms and strong adverse reporting incentives. Similarly, other studies have revealed severe compliance problems, particularly in the early stage of IFRS (e.g., Cairns, 2000), thus questioning the transparency of such financial reports.

In order to assess the transparency and quality of IAS/IFRS as compared to local GAAP and/or U.S. GAAP financial statements for a large and representative set of firms, other available studies focus on specific properties of the summary measures of the accounting process, particularly on the relation between earnings and stock returns (Bartov *et al.*, 2005, Barth *et al.*, 2005). These studies, however, by their design do not analyse the potential differences and changes in the information provided in the actual annual reports of firms adopting IFRS.

In this study, we assess the quality of the financial statements of firms which have already adopted internationally recognized standards (IFRS or U.S. GAAP) by comparing disclosure quality scores extracted from detailed analyses of the annual reports. We extract such quality scores from the annual financial report 'beauty contests' hosted by various business journals in several countries and conducted by leading academic scholars. By collecting and utilizing these scores—which had initially been assigned by the expert teams based on time-consuming analyses of the financial reports over the available years for three representative countries—we are able to combine the advantages of detailed financial statement analyses with those of a representative large sample-based research study.

We focus here on three countries (Austria, Germany and Switzerland) that have undergone a significant accounting regime change over the last decade. For these countries we investigate the effects of the transition from a setting where firms predominantly followed similar local reporting standards based on the German accounting origin tradition, to the current situation where the majority of the larger listed firms report their results according to internationally recognized standards (IAS/IFRS or U.S. GAAP). These three countries hosted in 2004 more than half (52 per cent) of the worldwide population of IFRS reporting firms, and therefore have either explicitly been utilized in prior IFRS-related studies (e.g., Leuz and Verrecchia, 2000; Bartov *et al.*, 2005) or have implicitly played the predominant role in the 'multinational' IFRS studies (e.g., Barth *et al.*, 2005).

Our results show that disclosure quality, as perceived by experts in their ratings of annual reports, has increased significantly under IFRS, both statistically and economically, in the three countries analysed. This result holds both in the cross-section and for firms switching from local to internationally recognized standards over time. Importantly, it does not hold only for firms which have voluntarily adopted IFRS or U.S. GAAP, but also for the subset of firms which mandatorily adopted such standards in response to the requirements of the German stock exchange for specific market segments. Although it is difficult to establish direct causality due to the inherent self-selection issues for most of the sample firms, our evidence shows at least that the disclosure quality of financial reports has significantly increased with the adoption of IFRS financial statements. In sum, our research contributes to the global discussion on the economic consequences of adopting IFRS.

THE TRANSITION PROCESS TOWARDS INTERNATIONAL FINANCIAL REPORTING STANDARDS

Since the mid-1990s there has been a rapid growth in the adoption of IAS/IFRS worldwide. As presented in Table 1, Panel A, the number of companies coded in Worldscope as IAS/IFRS adopters rose by 300 per cent in the period 1996 to 2004.[1] By 2004, 65 per cent of the IAS/IFRS adopters were from countries in the European Union and Switzerland. Companies from countries with a German accounting origin (Austria, Germany and Switzerland) dominate within the EU and account for more than 50 per cent of the worldwide IAS/IFRS adopters. These three countries are further characterized by the close similarity of many other institutional features (see, e.g., Ordelheide and KPMG, 2001).

The number of IAS/IFRS adopters from EU countries will further rise sharply by the fiscal year 2005 as Regulation (EC) No 1606/2002 requires all companies governed by the law of an EU member state whose securities are admitted to trading on a regulated market of any member state to prepare their consolidated accounts in conformity with IFRS for fiscal years starting on or after 1 January 2005.[2] EU domiciled firms currently reporting under full U.S. GAAP are allowed to change to IFRS for fiscal year 2007 at the latest.[3]

The process of changing to international accounting in Germany started in the early 1990s, when Daimler-Benz published its first Form 20-F with a reconciliation of net income and shareholder's equity from German GAAP (HGB) to U.S. GAAP[4] and Puma presented a full second set of financial statements under IAS.

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[1] We checked and corrected for inconsistencies in Worldscope using the notes to the financial statements as found on Thomson Research in order to identify precisely the years of switch to IAS/IFRS or U.S. GAAP.

[2] See Regulation (EC) No 1606/2002, Article 4.

[3] See Regulation (EC) No 1606/2002, Article 9 (b).

[4] See Radebaugh *et al.* (1995) for a detailed discussion of the Daimler case.

TABLE 1

NUMBER OF FIRMS ADOPTING IFRS

Panel A: IFRS adopters around the world

	1996	1997	1998	1999	2000	2001	2002	2003	2004
World	207	271	325	443	679	777	831	858	828
China	63	76	83	117	128	137	134	131	136
EU and Switzerland	103	143	182	257	402	467	525	536	538
% IFRS EU and Switzerland	*50%*	*53%*	*56%*	*58%*	*59%*	*60%*	*63%*	*62%*	*65%*
Germany	11	26	49	100	176	202	232	243	256
Switzerland	74	83	87	92	131	141	152	139	122
Austria	0	4	9	23	39	47	61	58	50
German accounting origin	85	113	145	215	346	390	445	440	428
% IFRS three countries	*41%*	*42%*	*45%*	*49%*	*51%*	*50%*	*54%*	*51%*	*52%*

Panel B: Distribution of local GAAP, IFRS and U.S. GAAP adopters in the sample

		1996	1997	1998	1999	2000	2001	2002	2003	2004
Germany	HGB	183	184	154	107	85	94	32	27	27
	IFRS	8	10	27	48	56	67	62	62	62
	U.S. GAAP	2	4	11	32	54	46	50	39	39
	All	193	198	192	187	195	207	144	128	128
Switzerland	FER					56	60	59	64	56
	IFRS					72	80	77	79	72
	U.S. GAAP					7	9	9	9	7
	All					135	149	145	152	135
Austria	AHGB				63	45	43	28	20	19
	IFRS				23	39	43	47	53	53
	U.S. GAAP				3	8	8	4	7	5
	All				89	92	94	79	80	77
% IFRS in sample		*4%*	*4%*	*8%*	*16%*	*14%*	*23%*	*23%*	*22%*	*23%*

Source: Panel A is based on the Worldscope item 'Accounting Standards Followed'. This information is verified with the notes in the actual annual reports, available from Thomson Research, and corrected, if mistakes are detected. In those cases where our sample firms in Panel B are not covered by Worldscope, we analyse their annual reports and add these firms to our information in Panel A.

Table 1, Panel A demonstrates that the number of German companies using IAS/IFRS or U.S. GAAP increased rapidly, in particular after 1998 when German legislators accepted in § 292a of the HGB financial statements prepared under international accounting standards (without explicitly mentioning IAS/IFRS or

U.S. GAAP) as an alternative set of group financial statements.[5] In the meantime, the vast majority of the major listed German firms adopted either IAS/IFRS or U.S. GAAP well before it became mandatory.

The development in Austria closely followed Germany. In 1999 § 59a of the Austrian HGB (AHGB) even allowed companies to use international accounting standards retrospectively for the annual reports of 1998.[6]

The change to international accounting has often been triggered by the decision to list shares on a U.S. stock exchange or in a special segment of the German stock market. In 1997, Deutsche Börse AG launched the New Market (*Neuer Markt*) for innovative and fast-growing industries, and in 1999 a market segment was introduced for small caps whose listing requirements called for financial statements to be prepared under either IAS/IFRS or U.S. GAAP. In 2003, Deutsche Börse AG restructured its markets on three levels of transparency (prime standard, general standard, entry standard). Listing under the prime standard became a prerequisite for inclusion in a major stock index (DAX, MDAX, TecDAX, and SDAX) and required the use of international financial reporting standards prior to 2005.[7] Thus, for the German market, we have a set of companies which voluntarily adopted IAS/IFRS or U.S. GAAP before 2005 and a set of firms which have been required to do so by Deutsche Börse AG from as early as 1997.[8]

The Vienna stock exchange also set up a prime market in 2002, which requires companies to report under either IAS/IFRS or U.S. GAAP. Companies already listed in the official market (*Amtlicher Handel*) could seek an exemption to continue to use Austrian GAAP until 2004, but then had to prepare reconciliations to either IAS/IFRS or U.S. GAAP.[9]

The Swiss stock exchange (SWX) since 1996 has accepted IAS or U.S. GAAP for listing in the SWX market as an alternative to local GAAP (FER) financial statements. It also required IAS or U.S. GAAP for the SWX New Market that operated from 1999 to 2003. Some large Swiss companies have applied U.S. GAAP or IAS from as early as 1988 when listing abroad, in addition to reporting under Swiss GAAP.[10]

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[5] See § 292a HGB as introduced by the *Kapitalaufnahmeerleichterungsgesetz*—KapAEG, BGBl I, April 24, 1998. These 'internationally accepted' accounting standards are IAS/IFRS and U.S. GAAP. See DRSC (2000): DRS 1.10-13.

[6] See Wagenhofer (2005, pp. 83–5).

[7] Companies already listed at the Frankfurt Stock Exchange as of 1 January 2003 are required to use international accounting standards for fiscal years starting on or after 1 January 2005. See § 95 *Börsenordnung für die Frankfurter Börse* at: www.deutsche-boerse.com (download: 11 November 2005).

[8] Companies may be allowed to provide annual reports prepared according to national GAAP together with reconciliation to either IFRS or U.S. GAAP. See § 62 *Börsenordnung für die Frankfurter Wertpapierbörse* at: www.deutsche-boerse.com (download: 11 November 2005).

[9] See Wiener Börse (2005, p. 12).

[10] See Helbling (2001, p. 295). For example, Nestlé has applied IAS/IFRS since 1989.

INTERNATIONAL ACCOUNTING STANDARDS AND REPORTING QUALITY

Changes in accounting regulation are intended to improve financial reporting. In particular, the switch to IAS/IFRS in the EU by the year 2005 has been motivated by the desire to seek higher quality accounting standards that should result in higher quality financial reports, and ultimately higher liquidity of the financial markets and lower cost of capital for adopting firms.

This persuasive line of argument is difficult to operationalize if one wants to measure the effects of a change in accounting regulation. There is no consensus on what are the characteristics of high quality accounting standards.[11] Notwithstanding this fact, it is commonly assumed that IAS/IFRS and U.S. GAAP standards provide higher information quality to outside investors as compared to most local reporting regimes outside the Anglo-Saxon sphere.

This assumption is mainly based on the greater quantity of mandatory disclosures, and on supposedly higher information content resulting from measurement rules which have been developed with the aim of providing relevant and reliable information to outside investors. Within the EU, this common belief relates particularly to the accounting regimes of Continental European countries, including the German accounting origin countries, which have been criticized for allowing too much discretion and for being heavily influenced by tax accounting rules.

However, higher quality financial reporting standards do not automatically lead to higher quality financial reports. Severe non-compliance with IFRS has been documented by Cairns (2000) and Street *et al.* (2000), but is also a problem with U.S. GAAP, in particular for companies not listed on a U.S. stock exchange and thus not subject to U.S. legal liability or the stricter enforcement by the SEC.[12]

In the context of lax enforcement mechanisms, Ball *et al.* (2003) illustrate the case of four East Asian countries. There, even under supposedly high-quality 'IAS-type' financial standards but also under adverse reporting incentives, it is shown that the financial statements will, *de facto*, not be transparent. They operationalize transparency as the timely recognition of economic losses.

This and other empirical research has tried to measure and judge the quality of IAS/IFRS financial statements by relying on measures of the properties of earnings, such as timeliness and conservatism or value relevance. Bartov *et al.* (2005) measure the value relevance in cross-sectional returns regressions with earnings as independent variables based on U.S. GAAP, IAS/IFRS and local German GAAP. As the regression coefficients on IAS/IFRS earnings are higher than those for German GAAP earnings, they argue that IAS/IFRS earnings are of higher information quality than German GAAP earnings, but of lower quality than U.S. GAAP earnings. However, the results from these return-based metrics are difficult to interpret and subject to certain limitations (see Holthausen and Watts, 2001; Holthausen, 2003).

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[11] See, for example, the discussion and analysis by Collins *et al.* (2002).

[12] See Glaum and Street (2003), Gebhardt and Heilmann (2004) and Bradshaw and Miller (2005).

In order to address these limitations, Barth *et al.* (2005) apply a more comprehensive set of properties as 'earnings quality' measures. In addition to value relevance, timeliness and conservatism metrics, they apply measures for earnings management (the variability of the change in net income; coefficient of small positive to small negative earnings; the ratio of the variability in net income to the variability of operating cash flows). When summarizing their results across the different metrics, they conclude a superiority of the quality of the financial reports of IAS/IFRS adopters over a matched sample of local GAAP reporting firms from twenty-three countries between 1990 and 2004. It should be noted, though, that their results are driven by the large adopting countries, Austria, Germany, Switzerland and China, which by 2004 comprise together more than 75 per cent of their sample firms (see also our Table 1, Panel A).

Other research has not tried to measure the quality of the IFRS financial statements directly. But it either assumes higher quality under IFRS up-front or, alternatively, tries to infer a higher quality from analysing the resulting perceived positive economic effects. For a set of early IAS adopters, Ashbaugh and Pincus (2001) find that analysts' earnings forecast accuracy increased post IAS-adoption. Leuz and Verrecchia (2000) find for their 1998 DAX 100 sample that firms that voluntarily switched to international accounting have lower bid ask-spreads and higher trading volume as compared to firms that continued to apply German GAAP. They find only minor differences when comparing IAS and U.S. GAAP adopters. Using the same methodology, Leuz (2003) compares firms quoted on the German New Market which, due to the listing requirements of the Deutsche Börse, have to apply internationally recognized accounting standards. He fails to find any statistically or economically significant differences in bid ask-spreads and trading volume for IAS and U.S. GAAP adopters. Finally, Daske (2006) fails to find lower implied cost of equity capital for German firms adopting internationally recognized standards during the transition period until 2001.

None of the prior studies assesses the quality of the financial reports by looking directly into the actual annual reports. The one exception is Leuz and Verrecchia (2000), who apply for their small sample of early non-local GAAP adopters (14 IAS; 7 U.S. GAAP) annual report ratings based on a disclosure index published in the German business journal *Capital* in 1998 as a measure of the quality of accounting reports. We will follow the same approach, but rely not only on a much broader sample, but also study adopting companies with different firm characteristics, reporting incentives and adoption styles when choosing IAS/IFRS or U.S. GAAP.

RESEARCH METHOD

The changes in disclosure quality in annual reports after the adoption of IFRS are measurable by detailed analysis and a comparison of published financial statements.[13] Such a comprehensive approach is taken, for example, in compliance studies, which analyse financial statements utilizing detailed, auditor type disclosure check-lists.[14] However, such an approach is very time-consuming and, accordingly, the resulting evidence is typically small-sample-based and thus potentially not representative of the underlying population.

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[13] Electronic copies of the annual reports of firms around the world can be found on Thomson Research.

An alternative is to utilize available scores which have been collected by financial analysts or their associations. In the U.S., the ratings of the Financial Analysts Federation (FAF) Corporate Information Committee have been used to judge the disclosure quality of financial statements (e.g., Lang and Lundholm, 1996). Internationally, Hope (2003) applies similar scores from the Center for International Financial Analysis Research (CIFAR). Typically, these scores are only available for larger firms, well covered by financial analysts. Such scores are not available for the vast majority of firms which have adopted IFRS.[15] Also, conceptually, the validity of these scores has been questioned due to concerns about the independence of financial analysts and their incentives which might influence the assignment of their scores and relative ratings.

In 2001/2002, Standard & Poor's (S&P) carried out an independent global 'Transparency and Disclosure' study examining the transparency of about 1,500 (including U.S.) companies worldwide.[16] The study is based on a checklist of 98 possible items of information ('attributes') of which only 35 referred to information disclosure in the annual reports. Instead, 28 attributes referred to ownership structure and investor relations, and 35 to boards of directors, management structure and process. As such, the S&P scores can be considered to capture primarily corporate governance related issues and have therefore been mainly utilized in corporate governance research.[17] Further, there are no time series-data available for the global S&P scores.

The method we apply in this paper is to utilize 'quality scores' extracted from the yearly 'Best Annual Report' beauty contests which have been held for several years in various countries. Such scores or rankings have also been applied by others in disclosure research (see Leuz and Verrecchia, 2000; Hail, 2002). These quality scores are still subjective, and subject to weighting and aggregation of information, but at least they are typically performed by independent and reputable scholars. The levels of detail in their analysis (e.g., the items and categories covered and the information extracted from the actual annual reports) are typically much greater than under the CIFAR or S&P scores (see below). Also, our quality scores are available as a time-series of up to eight fiscal years.

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[14] See, for example, Cairns (2000), Glaum and Street (2003) and Gebhardt and Heilmann (2004).

[15] CIFAR scores are not available beyond 1995, when the last edition of *International Accounting and Auditing Trends* was published, see Khanna *et al.* (2004, p. 483).

[16] See Standard & Poor's (2002) for further details. The study covered 351 firms domiciled in Europe.

[17] See Khanna *et al.* (2004) for a notable exception.

The 'Best Annual Report' Contests

We employ measures of the information quality of annual reports from the annual competitions for the best annual reports in the business journals *Capital* and *Focus Money* (Germany 1996–2003), *Bilanz* (Switzerland 2001–04) and *Trend* (Austria 1997–2004). These journals ask experts to rate annual reports based on scoring models for the financial statements, the notes to financial statements, the report on the current state and future development of the business (*Lagebericht*), and supplementary as well as voluntary information. The evaluation criteria adopted by the experts are not identical across the three countries and they have been adjusted or even significantly changed over time in order to reflect changes in the reporting environment. However, they can be seen as concurrent expert evaluations based on the actual contents of the annual reports, irrespective of the accounting system applied. Further, as displayed in Table 1, Panel B, over the period 2000 to 2004, about 23 per cent of the worldwide IAS/IFRS adopters are included in our sample.

In Germany, there have been two competing annual report contests hosted by *Manager Magazin* under the scientific supervision of Professor Baetge (University of Münster) and by *Capital* (later *Focus Money*) under the scientific supervision of Professor Küting (University of Saarbrücken). Since the results for the *Manager Magazin* contest are only partially disclosed in the articles and were not made available to us, we used the *Capital* scores which are derived from quantitative scoring models.[18] From 1996 to 1998, scores were assigned in three categories, the information quality of the financial reports (*Informationsqualität*), the design and layout of the annual report (*Präsentationsqualität*) and a rating based on a survey of financial analysts through the Society of Investment Professionals in Germany (DVFA) (*Analystenurteil*). From fiscal year 1999, the third category, with ratings by financial analysts, has been hosted by *Capital* as a separate contest with the assignment of a prize for 'Best Investor Relations' and only the two remaining categories now constitute the 'Best Annual Report' contest. From fiscal year 2001, the annual report contest was sponsored by the business journal *Focus Money* until this contest was discontinued in 2004.

In Germany, the scales and the criteria for the total quality score on which the rankings of firms have been based has changed considerably over time. However, the information quality section which attempts to capture differences in the information content of the financial statements and the notes to the financial statements has been consistently collected by Professor Küting under a similar scorecard-based approach across all years. Our analysis is restricted to the information quality scores only and they are adjusted across the years to a common base.

In Switzerland, the business journal *Bilanz* has hosted annual report contests since the mid-1990s. The detailed results for all firms analysed have been made available for the fiscal years 2001–04. The total ranking for these years has been based on the evaluation of two categories: *Value Reporting* collected by the Swiss

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[18] The *Capital* (later *Focus Money*) scores can be considered more transparent to outside users and have also been used in prior international research (see Leuz and Verrecchia, 2000, pp. 102–3).

Banking Institute of the University of Zurich under the supervision of Professor Labhart; and *Design and Layout* by a group of public relations and design experts. As the first category was primarily designed to capture differences in the information content of the financial disclosures, we restrict our analysis to the scores for this category only.

In Austria, since 1989, the business journal *Trend* has asked experts to evaluate and rank the annual reports of all Austrian firms listed in the *Amtlicher Handel* of the Vienna stock exchange. Starting with annual reports for the fiscal year 1997, the formerly purely subjective evaluation scheme has been supplemented with a quantitative scorecard with predefined criteria used by the *Projektgruppe für Unternehmenskommunikation* (*PUK*), a group of researchers at the Vienna University of Economics and Business Administration (WU Wien). This evaluation scheme is based on the informational needs of financial statement users identified in prior research and interviews with peer user groups. In a second step, groups of experts then add their evaluation to augment the quantitative first-step analyses in order to come up with a final ranking.

While this two-step evaluation scheme was consistently applied to all fiscal years from 1997 until 2004, the categories, the individual items considered within a category and the team of experts varied from year to year. For the fiscal years 1997 until 2002, the PUK defined three evaluation categories and assigned weights to the calculation of the total score: financial information (*Betriebswirtschaft*) (50 per cent), non-financial information (*Publizistik*) (30 per cent), and report layout (*Design*) (20 per cent). For 2003 and 2004, this scheme was changed to two categories with equal weights: financial information (*Business Reporting*) and non-financial information (*Mediumsqualität*). In addition, from fiscal year 2000, the jury analysed in detail only the top 20 per cent in the first quantitative round (*Feinanalyse*), and from fiscal year 2003 this second-round score was determined only for the top 20 per cent of annual reports and added to the first-round scores. This modification caused not only a change in the range of the summary score from formerly 0–100 per cent in 1997–2002 to 0–200 points in 2003 and 2004, but also a structural change in the distribution of scores between the top 20 per cent and the rest of the companies. Furthermore, the team of experts in the jury changed over time. For example, Professor Bertl (1997–99), Professor Wagenhofer (2000–03) and Professor Janschek (2004) have each been in charge of the evaluation of the financial information category. Finally, as information on the scores for the individual categories has not been available for most of our study period, we can only make use of the total summary scores which include non-financial aspects of the annual report. As such, the Austrian scores can be considered more 'noisy' disclosure quality measures.

The numbers of firms included in the annual contests differ over time (Table 1, Panel B). Whereas these numbers have been fairly stable for the Austrian and Swiss contest, the size of the German compilation was reduced considerably from 2002, when sponsorship of the contest was transferred from *Capital* to *Focus Money*. As the primary focus of contests is to 'crown' the best annual report, the samples of firms covered in the competitions are biased towards larger listed companies in all three countries. Still, as noted already for the period 2000–04, about 23 per cent of all IAS/IFRS adopting firms worldwide are covered by the three competitions.

Appendix A summarizes the details of the evaluation methods used in annual report contests as well as the methods used to calculate the final scores and rankings. Appendix B provides the descriptive statistics for the raw scores we utilize, as taken from the original sources (magazine articles or web pages).

Disclosure Quality Scores

The original scoring models employed different score ranges, for example, from 0–100, 0–200, 0–500. For our analysis across countries and time, we standardize all raw scores to a common range from 0–100 (SCORE). Further raw scores are converted to a standardized score with a mean of zero and a standard deviation of one (Z-SCORE). In addition to the absolute measures, we employ the ranks of the individual companies in the different years. As these comprise different numbers of companies across years, relative rankings are calculated as the ratio of the rank of firm i to the number of firms in the ranking for a given year n (RANK).

All three measures (SCORE, Z-SCORE, RANK) have their unique advantages and disadvantages for this analysis. While the absolute measure SCORE yields the most direct and intuitive results, it can only be analysed or pooled across years when the evaluation criteria have remained constant over time. The Z-SCORES seek to adjust for the variation across scores under different evaluation schemes, but also to remove shifts or trends over time in the mean score as well as changes in the variation of the underlying population. The relative RANK scores are intended to be useful for comparisons over time. However, as the number of firms reporting under internationally recognized standards increases over time, it will become more difficult for late-switching firms to increase in rank relative to their peer group than for early switching firms, if switching from local GAAP to IFRS or U.S. GAAP really increases reporting quality. This might affect the inferences drawn from the RANK measure in a pre-versus-post analysis of firms switching from local GAAP to an international GAAP reporting regime.

Empirical Analyses

The research question is whether there are systematic differences in the scores that can be related to the set of accounting standards applied by the companies. Our univariate analyses first test for statistical differences in the average and median SCORE (Z-SCORE) and RANK across accounting regimes using conventional t-tests and nonparametric Wilcoxon Rank-Sum tests (level of significance reported for two-sided tests). We further test for such differences by means of percentile bootstrap confidence intervals. The bootstrap method works under less restrictive assumptions about the distributional properties of the population and appears to be especially suited for statistical inferences to be derived from small samples (see, e.g., Efron and Tibshirani, 1993).

Our multivariate analysis attempts to analyse the effect of applying internationally recognized accounting standards on the disclosure quality of firms, after controlling for firm characteristics and thus firm-level reporting incentives. However, this is not a trivial task, as the voluntary nature of the decision to adopt IFRS or U.S. GAAP could introduce a (self-) selection bias in the coefficients of a regression of financial reporting standards and firm characteristics on our financial reporting quality scores. The econometric approaches typically chosen to control for self-selection of the accounting regime (e.g., Heckman, 1987)[19] are not suitable for our research because there are no suitable instrumental variables which would predict the standard selection choice in the first stage, but would not affect the disclosure quality choice in the second.

For that reason, in addition to the typical panel regressions on our total sample we perform two analyses for specific subgroups of firms for which self-selection appears to be less of an issue. Our second multivariate analysis focuses on the set of switch firms only. Using the switch firm sample, we first regress our dependent variables SCORE and RANK solely on a dummy variable capturing the accounting regime switches to IFRS or U.S. GAAP. We assess the importance of this switch variable by testing for a positive and significant regression coefficient. Then various incentive and control variables are included in order to assess their relative ability to capture the effect of the change in disclosure quality at the time of the adoption of IFRS or U.S. GAAP. We judge the relative importance of the international reporting dummy by the change of its coefficient's magnitude and level of significance in our second regression including the other control variables.

Our third multivariate analysis investigates only the subset of firms on the German New Market and in the TechDAX or SDAX indexes from 2002 which mandatorily applied IAS/IFRS or U.S. GAAP, but some of which fully adopted these standards a year or two after they became listed under a transitional option.[20] Although these companies thus exercised the option to adopt internationally recognized standards at a later date, they were still forced by regulation to adopt IFRS or U.S. GAAP.

All multivariate analyses regress our SCORE and RANK variables as dependent variables on the various firm characteristics and on a dummy variable for reporting under IFRS or U.S. GAAP, taking the base value for zero for local GAAP reporters (INT_STAND). We restrict our analysis to Germany and Switzerland, for which we have comparable quality scores over time. We pool the data across years and report regression results with Huber-White standard errors adjusted for firm-specific autocorrelation in the disclosure scores. As a sensitivity test, we further perform yearly OLS regressions and report the average regression coefficients and *t*-statistics across all available individual years.

Our multivariate analyses utilize a very similar set of control variables to prior research (see Leuz and Verrecchia, 2000). These variables have been identified as determinants of the disclosure quality of individual firms. In general, disclosure quality is positively related to firm size, the number of analysts following a firm, its financing needs and its performance. We therefore include firm size defined as either the log of market capitalization at fiscal year end (MCAP) or the log of total assets at fiscal year end (TA), the number of financial analysts following a firm (NO), leverage defined as total debt divided by market capitalization (LEV), free float (FFLOAT), capital intensity defined as the ratio of net property, plant and equipment to total assets (CAPINT), and profitability measured as return on assets (ROA). We further use a dummy variable for a listing on a U.S. stock exchange, NYSE or NASDAQ (US_LISTING), and a dummy for firms listed on the German New Market or TechDAX (NM_TECH). We also include year and industry (one digit-SIC code) dummies in our panel regressions.

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[19] See Leuz and Verrecchia (2000), Bartov *et al.* (2005).

[20] The transitional option was granted by Deutsche Börse, *Regelwerk Neuer Markt*, Abschnitt 2, Tz. 7.3.2. for a period of up to two fiscal years after becoming listed on the New Market.

RESULTS

Descriptive Statistics

Table 2 presents descriptive statistics for our disclosure quality variables derived from the annual report contests in Germany (Panel A), Switzerland (Panel B) and Austria (Panel C). We report yearly summary statistics for the SCORE variable as well as average values of these statistics across all fiscal years for the SCORE, Z-SCORE and RANK variable.

The mean (median) score for German companies rises from 60.63 (60.00) for fiscal year 1996 annual reports to 69.93 (72.10) for fiscal year 2003 annual reports. A rise in the average (median) scores from 24.31 (21.18) to 44.37 (43.40) can also be observed for the Swiss companies in the 2001–04 period. Even though the averages (medians) are not fully comparable as the evaluations are based on slightly adjusted scoring models over time, a significant positive trend towards higher disclosure quality is evident in both countries. The coefficient of a time variable regressed on SCORE is significantly positive at the 1 per cent level for both Germany and Switzerland (not tabulated). The 'true' increase in disclosure quality will be even greater than reflected in these scores as the contests' scorecards have generally become more comprehensive over time.

A comparison over time of the Austrian scores is not appropriate, as the scoring models have been changed considerably during the sample period. However, in the comments in the *Trend* articles, the experts' juries in 1998, 1999, 2000, 2001 and 2003 stated an overall increase in information quality of the annual reports analysed.

The large difference in magnitude of the average SCOREs assigned across the three countries further illustrates the different evaluation schemes applied. Whereas the Swiss experts have assigned, on average, around 38 out of 100 per cent over the years of their sample period, the Austrian experts assigned around 51 and the Germans even around 63 per cent.

For the Z-SCORE and the RANK variables, we report only average values across the fiscal years as the yearly information is very similar. The Z-SCORE variables are standardized by design to a mean value of zero (and a standard deviation of one). Likewise, the RANK variables display a mean close to 0.50 with a range from 1/*n* to one.

TABLE 2

ANNUAL REPORT CONTEST SCORES: DESCRIPTIVE STATISTICS

Panel A: Germany

Year	Variable	*N*	Mean	Median	Q1	Q3	Min	Max
1996	SCORE	200	60.63	60.00	50.00	70.00	20.00	90.00
1997	SCORE	202	51.84	52.33	41.33	63.33	4.67	85.67
1998	SCORE	204	58.84	59.67	48.67	70.33	4.67	86.33
1999	SCORE	222	60.15	61.50	50.33	72.67	0.00	93.33
2000	SCORE	199	56.24	66.00	58.00	79.60	0.00	100.00
2001	SCORE	209	59.01	67.60	61.30	79.90	17.50	92.40
2002	SCORE	155	58.41	67.60	60.10	79.30	26.20	89.50
2003	SCORE	136	59.93	72.10	59.80	80.05	19.60	90.40
Avg.	SCORE		63.13	63.35	53.69	74.40	11.58	90.95
Avg.	Z_SCORE		0.00	0.01	−0.65	0.77	−3.50	1.88
Avg.	RANK		0.48	0.48	0.23	0.73	0.01	1.00

Panel B: Switzerland

Year	Variable	*N*	Mean	Median	Q1	Q3	Min	Max
2001	SCORE	158	24.31	21.18	16.60	28.77	0.00	71.17
2002	SCORE	177	40.82	39.00	34.17	46.83	23.00	73.17
2003	SCORE	177	42.71	41.33	35.50	48.50	27.50	71.33
2004	SCORE	200	44.37	43.40	36.13	51.58	22.50	73.92
Avg.	SCORE		38.05	36.23	30.60	43.92	18.25	72.40
Avg.	Z_SCORE		0.00	−0.17	−0.71	0.57	−1.86	3.21
Avg.	RANK		0.50	0.50	0.25	0.74	0.01	1.00

Panel C: Austria

Year	Variable	*N*	Mean	Median	Q1	Q3	Min	Max
1997	SCORE	92	56.50	57.27	47.73	64.39	23.88	82.02
1998	SCORE	90	57.28	55.19	46.86	67.49	17.04	90.75
1999	SCORE	93	56.74	57.38	45.71	67.91	15.04	89.10
2000	SCORE	95	45.88	46.03	31.78	55.67	9.84	89.44
2001	SCORE	98	39.88	38.44	26.18	50.72	11.25	87.86
2002	SCORE	83	40.60	39.03	31.14	50.63	11.70	65.63
2003	SCORE	83	48.85	48.89	34.82	63.20	9.40	85.20
2004	SCORE	81	62.34	63.86	50.57	74.87	22.71	91.38
Avg.	SCORE		51.01	50.76	39.35	61.86	15.11	85.17
Avg.	Z_SCORE		0.00	−0.02	−0.75	0.70	−2.35	2.21
Avg.	RANK		0.51	0.51	0.26	0.76	0.01	1.00

Source: The raw score information has been assigned by teams of reputed academic accounting experts based on the information quality of published annual reports. It is published by the business journals *Capital/Focus Money* (Germany), *Bilanz* (Switzerland) and *Trend* (Austria). For details, see Appendix A.
SCORE is the raw score converted to a common range from 0–100 points.
Z_SCORE is the raw score standardized to a score with a mean of zero and a standard deviation of one.
RANK is the ratio of the rank of firm *i* to the number of firms in the ranking for a given year *n*.

Univariate Results: Financial Reporting Standards

Table 3 summarizes the univariate results on the differences in mean and median SCORE and RANK across the three different accounting regimes. For brevity, we report only differences in the means and medians of the SCORE and RANK variables (the level of significance is identical for the SCORE and Z-SCORE variable in the yearly analyses). These results are presented separately for each fiscal year and we further report the average values across all fiscal years.

For German firms (Panel A), the mean and median scores (ranks) for the IFRS annual reports are significantly higher (lower) than those for the local GAAP reports. This result holds for each of the eight individual years of analysis. The *p*-values for the difference in mean and median for both the SCORE and RANK variables are smaller than 0.001 for each individual year under the bootstrap method (not tabulated). In addition, the magnitude of the difference in the average scores of IFRS and HGB reports also appears to be economically significant. Across the eight years, IFRS financial reports are assigned disclosure scores that on average are 11.49 points (or 18.9 per cent) higher than local GAAP reports.

The mean and median scores (ranks) assigned to the U.S. GAAP annual reports are also higher (lower) than the local GAAP reports for most of the years except for 1999 and 2000. However, as compared to IFRS versus German HGB, the differences in mean and median are much smaller (on average 3.14 points or 5.2 per cent across the eight years) and often insignificant or only weakly significant.

For Swiss firms (Panel B), the mean and median scores are again significantly higher for the IFRS than for the local GAAP preparers. The same result is found for the U.S. GAAP adopters, which are assigned significantly higher scores (and lower ranks) than the local FER reporters. Once more, the level of significance is generally even higher under the untabulated bootstrap tests, in which case even the differences in 2001 between FER and IFRS reporters are highly significant at the 1 per cent level. On average, across the four fiscal years 2001–04, Swiss GAAP FER reports have mean scores of only 36.18 points, while IFRS reports are assigned 41.18 (i.e., 14 per cent higher), and U.S. GAAP reports even higher at 48.39 out of 100.

For the Austrian firms in Panel C, the mean and meridian scores for annual reports prepared according to local GAAP AHGB are also significantly lower than for annual reports under IFRS and U.S. GAAP. This result holds on average across the sample years as well as for each of the eight years using conventional *t*-tests, nonparametric Wilcoxon Rank-Sum tests, and the bootstrap method. Under the Austrian evaluation scheme, AHGB annual reports have been assigned 38.90 points over the eight year period, while U.S. GAAP reports achieved 53.81 (38 per cent higher) and IFRS reports even higher at 55.64.

Taken together, these results show that the application of IFRS has consistently led to higher quality financial report ratings across the three countries studied. The differences are in most years statistically significant at the .001 level and appear to be economically significant in magnitude as well.

However, local GAAP, IFRS and U.S. GAAP reporters are not randomly drawn from an underlying population of similar firms. Instead, the univariate results are based on the differing characteristics of the firms reporting under a

Table 3

DISCLOSURE QUALITY AND FINANCIAL REPORTING STANDARDS: ALL FIRMS

Panel A: Germany

Fiscal year	Reporting standards	Score						Rank					
		n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
1996	HGB	183	59.92		60.00		13.35	183	0.41		0.41		0.29
	IFRS	8	77.50***	3.65	80.00***	3.13	12.82	8	0.13***	−2.74	0.06***	−3.13	0.17
	U.S. GAAP	2	60.00	.	60.00	.	14.14	2	0.38	.	0.38	.	0.36
1997	HGB	181	51.03		52.33		14.56	181	0.49		0.48		0.28
	IFRS	10	68.17***	3.64	71.33***	3.14	15.28	10	0.21***	−3.12	0.09***	−3.14	0.27
	U.S. GAAP	4	65.17*	1.94	67.00*	1.80	13.56	4	0.24*	−1.81	0.19*	−1.80	0.24
1998	HGB	153	57.71		59.67		13.98	153	0.50		0.45		0.28
	IFRS	27	69.26***	4.03	70.67***	3.94	12.55	27	0.27***	−4.00	0.17***	−3.94	0.24
	U.S. GAAP	10	59.67	0.08	57.83	0.15	16.85	10	0.47	−0.09	0.50	−0.15	0.33
1999	HGB	107	62.06		62.67		15.84	107	0.48		0.47		0.26
	IFRS	47	69.09**	2.52	71.67**	2.71	16.35	47	0.35***	−2.61	0.26***	−2.71	0.29
	U.S. GAAP	32	56.28*	1.71	57.00*	−1.65	19.59	32	0.56	−1.63	0.64*	1.65	0.30
2000	HGB	82	64.07		64.00		14.44	82	0.54		0.54		0.27
	IFRS	53	73.57***	4.03	74.60***	3.87	13.73	53	0.36***	−4.05	0.31***	−3.87	0.26
	U.S. GAAP	52	63.52	0.08	62.80	−0.08	17.26	52	0.54	0.04	0.58	0.08	0.29

2001	HGB		94	65.35		65.35		12.15	94	0.58		0.58		0.27
	IFRS		62	73.86***	4.26	78.10***	4.37	13.90	62	0.38***	−4.64	0.29***	−4.37	0.29
	U.S. GAAP		45	69.62*	1.89	68.80	1.30	11.29	45	0.50	−1.38	0.46	−1.30	0.28
2002	HGB		32	63.11		61.55		13.51	32	0.63		0.70		0.30
	IFRS		62	73.34***	3.63	76.75***	3.50	12.67	62	0.38***	−4.02	0.32***	−3.50	0.27
	U.S. GAAP		50	68.85**	2.01	66.55**	2.26	11.97	50	0.50**	−2.07	0.53**	−2.26	0.26
2003	HGB		25	63.94		60.90		14.52	25	0.63		0.73		0.32
	IFRS		62	74.33***	3.88	77.65***	3.36	10.95	62	0.41***	−3.70	0.38***	−3.37	0.26
	U.S. GAAP		38	69.23*	1.72	68.35*	1.92	13.55	38	0.52*	−1.78	0.57*	−1.92	0.28
Avg.	HGB			60.90		60.81				0.53		0.55		
	IFRS			72.39		75.10				0.31		0.24		
	U.S. GAAP			64.04		63.54				0.46		0.48		
Avg.	IFRS vs. HGB	Δ		11.49***	3.71	14.29***	3.50			−0.22***	−3.61	−0.31***	−3.50	
	U.S. GAAP vs. HGB	Δ		3.14	1.35	2.73	0.82			−0.07	−1.25	−0.06	−0.82	
	U.S. GAAP vs. IFRS	Δ		−8.35**	−2.09	−11.56**	−2.08			0.15**	2.19	0.25**	2.08	

TABLE 3

(CONTINUED)

Panel B: Switzerland

Fiscal year	Reporting standards	Score						Rank					
		n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
2001	FER	56	22.62		19.75		12.37	56	0.53		0.53		0.28
	IFRS	72	26.12	1.50	22.70	1.45	13.53	72	0.46	−1.52	0.45	−1.46	0.28
	U.S. GAAP	7	39.81***	3.54	37.97***	3.25	9.21	7	0.15***	−3.59	0.15***	−3.25	0.08
2002	FER	60	38.55		36.92		7.76	60	0.57		0.60		0.25
	IFRS	80	43.56***	3.37	42.75***	3.41	9.34	80	0.41***	−3.50	0.36***	−3.42	0.28
	U.S. GAAP	9	49.65***	3.87	48.33***	3.30	9.76	9	0.24***	−3.73	0.19***	−3.30	0.20
2003	FER	59	40.49		40.00		7.20	59	0.56		0.54		0.24
	IFRS	77	46.48***	4.00	46.00***	3.96	9.63	77	0.38***	−4.04	0.32***	−3.96	0.27
	U.S. GAAP	9	50.69***	3.58	53.50**	2.38	12.11	9	0.30***	−2.87	0.13**	−2.38	0.30
2004	FER	64	43.07		42.01		8.17	64	0.53		0.54		0.24
	IFRS	79	48.55***	3.60	48.67***	3.47	9.70	79	0.38***	−3.55	0.34***	−3.47	0.26
	U.S. GAAP	9	53.41***	3.34	51.85**	2.31	12.10	9	0.30***	−2.70	0.24**	−2.31	0.26
Avg.	FER		36.18		34.67		8.88		0.55		0.55		0.25
	IFRS		41.18		40.03		10.55		0.41		0.37		0.27
	U.S. GAAP		48.39		47.91		10.80		0.25		0.18		0.21
Avg.	IFRS vs. FER	Δ	5.00***	3.12	5.36***	3.07		Δ	−0.14***	−3.15	−0.19***	−3.08	
	U.S. GAAP vs. FER	Δ	12.21***	3.58	13.24***	2.81		Δ	−0.30***	−3.22	−0.38***	−2.81	
	U.S. GAAP vs. IFRS	Δ	7.21*	1.77	7.88*	1.69		Δ	−0.16	1.60	−0.19*	−1.69	

Panel C: Austria

Fiscal year	Reporting standards	Score						Rank					
		n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
1997	AHGB	87	55.88		56.63		12.10	87	0.52		0.53		0.29
	IFRS	3	71.92**	2.28	74.13**	2.45	4.33	3	0.10**	−2.54	0.08**	−2.45	0.06
	U.S. GAAP	0	.	.	.	.	.		.	.	.	.	.
1998	AHGB	78	55.01		53.48		13.25	78	0.55		0.56		0.27
	IFRS	11	72.35***	3.93	77.39***	3.38	16.66	11	0.23***	−3.63	0.11***	−3.38	0.28
	U.S. GAAP	1	67.96	.	67.96	.	.	1	0.23	.	0.23	.	.
1999	AHGB	63	52.59		54.63		14.81	63	0.58		0.57		0.27
	IFRS	23	66.58***	3.95	68.57***	3.61	14.62	23	0.32***	−3.97	0.24***	−3.61	0.27
	U.S. GAAP	3	71.82**	2.23	67.91**	2.05	13.47	3	0.23**	−2.21	0.26**	−2.05	0.20
2000	AHGB	45	37.07		32.90		13.92	45	0.67		0.71		0.26
	IFRS	39	54.45***	5.66	53.29***	5.05	14.18	39	0.35***	−5.97	0.33***	−5.05	0.23
	U.S. GAAP	8	56.16***	3.59	58.23***	3.02	13.39	8	0.30***	−3.74	0.21***	−3.02	0.25
2001	AHGB	43	30.41		25.76		15.18	43	0.69		0.77		0.26
	IFRS	43	48.31***	5.55	48.28***	5.36	14.68	43	0.35***	−6.60	0.31***	−5.36	0.22
	U.S. GAAP	8	47.68***	2.91	50.98	2.68	16.62	8	0.36***	−3.17	0.26***	−2.68	0.29
2002	AHGB	28	31.99		32.25		11.14	28	0.71		0.75		0.25
	IFRS	47	45.05***	4.94	43.59***	4.46	11.05	47	0.40***	−5.17	0.36***	−4.46	0.26
	U.S. GAAP	4	52.89***	3.65	51.02***	2.71	5.23	4	0.22***	−3.92	0.25***	−2.70	0.09

TABLE 3

(CONTINUED)

Fiscal year	Reporting standards	Score						Rank					
		n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
2003	AHGB	20	21.39		15.41		17.17	20	0.72		0.83		0.28
	IFRS	53	38.19***	4.05	26.49***	3.89	21.93	53	0.43***	−4.34	0.43***	−3.89	0.26
	U.S. GAAP	7	35.77***	2.78	27.63***	2.68	21.57	7	0.40***	−2.95	0.39***	−2.68	0.22
2004	AHGB	19	26.87		22.94		15.48	19	0.76		0.83		0.24
	IFRS	53	48.31***	6.02	46.72***	4.65	21.44	53	0.41***	−5.57	0.38***	−4.65	0.25
	U.S. GAAP	5	44.36**	2.47	36.18*	1.92	25.59	5	0.46**	−2.52	0.42*	−1.92	0.34
Avg.	AHGB		38.90		36.75		14.13		0.65		0.69		0.26
	IFRS		55.64		54.81		14.86		0.32		0.28		0.23
	U.S. GAAP		53.81		51.42		15.98		0.31		0.29		0.23
Avg.	IFRS vs. AHGB	Δ	16.74***	4.55	18.06***	4.11		Δ	−0.33***	−4.72	−0.41***	−4.11	
	U.S. GAAP vs. AHGB	Δ	14.90***	2.94	14.67**	2.51		Δ	−0.34***	−3.09	−0.41**	−2.47	
	U.S. GAAP vs. IFRS	Δ	−1.84	−0.40	−3.39	−0.45		Δ	−0.01	0.41	0.01	−0.45	

particular reporting system, most of which have chosen that particular reporting system. Good examples are the relative scores of the IFRS compared to the U.S. GAAP reporters. In Austria, the differences in SCORE and RANK between IFRS and U.S. GAAP preparers is generally small in magnitude and statistically insignificant. Instead, in Switzerland, U.S. GAAP reports earn significantly higher SCORES than IFRS reports. In Germany, this result is reversed, with IFRS outperforming U.S. GAAP financial reports. When looking at the underlying population of firms, it quickly becomes apparent that, in the German U.S. GAAP group, a comparatively high percentage of firms had been listed at some point in time on the German New Market (57 per cent). Many of these firms were young, recently listed companies which have not been subject to rigorous SEC-type enforcement. Accordingly, these firms generally have been considered as low quality financial reporting firms (see Glaum and Street, 2003). Instead, in the U.S. GAAP reporting group in Switzerland (nine firms), two-thirds of our sample firms are cross-listed in the U.S. (67 per cent) and thus bond themselves to be high quality reporting firms under rigorous SEC enforcement (e.g., Lang *et al.*, 2003). The percentage of German companies applying U.S. GAAP and cross-listed in the U.S. in our sample (16 per cent) is much smaller.

Univariate Results: Switch Firms

In order to control for underlying firm characteristics, we use the firm as its own control to analyse the subset of companies which switched from local GAAP accounting standards (AHGB, HGB, FER) to either IFRS or U.S. GAAP. We compare the first fiscal year's score under internationally recognized standards to the last fiscal year's score under local GAAP. The results are reported in Table 4. We report both the average and median change in the SCORE and RANK variable ('change' analysis), as well as the change relative to the change in SCORE and RANK over the same period in time of the group of firms which did not switch their accounting standards and thus reported their results entirely under local GAAP ('difference-in-difference' analysis).

For the sixty-two German companies switching from HGB to IFRS during our 1996–2003 sample period, the mean and median quality scores improve significantly in the fiscal year post IFRS adoption ($p < .001$, Table 4, Panel A). On average, SCORE increases by 10.53 points from the last HGB to the first IFRS adoption. When we compare the magnitude of this change to a corresponding change of firms which still apply local GAAP over the same period, IFRS adoption results in scores that are nearly 9 points higher than those for the HGB reference group. This result is confirmed by the highly significant improvement in the relative ranks of IFRS adopters. They have gained, on average, 18 relative ranks after IFRS adoption and even 19 relative ranks compared to their local GAAP benchmark.

For the sixteen German firms which have adopted U.S. GAAP, the 7.01 points improvement in the average score (and the 4.9 points increase relative to the local GAAP benchmark in the difference-in-difference analysis) is lower than the improvement of IFRS adopters. However, from the level of scores pre- and

TABLE 4

DISCLOSURE QUALITY AND FINANCIAL REPORTING STANDARDS: SWITCH FIRMS

Panel A: Germany

Reporting standards	Score						Rank					
	n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
HGB pre-switch	62	64.94		64.50		13.75	62	0.47		0.48		0.29
IFRS post-switch	62	75.47		76.60		10.06	62	0.28		0.26		0.22
Change	Δ	10.53***	4.53	12.10***	4.23		Δ	−0.18***	−3.55	−0.23***	−3.26	
Difference-in-difference	ΔΔ	8.96***	3.90	11.59***	3.78		ΔΔ	−0.19***	−3.63	−0.26***	3.96	
HGB pre-switch	16	72.89		74.33		10.73	16	0.30		0.21		0.27
U.S. GAAP post-switch	16	79.90		81.60		7.03	16	0.19		0.16		0.11
Change	Δ	7.01**	2.19	7.27*	1.89		Δ	−0.11	−1.47	−0.05	0.51	
Difference-in-difference	ΔΔ	4.90	1.44	2.90	1.00		ΔΔ	−0.13*	−1.94	−0.11	−1.23	

Panel B: Switzerland

Reporting standards	Score						Rank					
	n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
FER pre-switch	6	31.82		30.62		12.65	6	0.48		0.49		0.19
IFRS post-switch	6	43.18		44.10		6.91	6	0.45		0.40		0.26
Change	Δ	11.36*	1.93	13.48	1.52			−0.02	−0.56	−0.09	−0.24	
Difference-in-difference	ΔΔ	2.11	0.56	3.88	0.40			0.07	0.21	−0.04	−0.24	

Panel C: Austria

	Score						Rank					
	n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
Difference-in-difference	41	5.02*	1.81	1.96	1.38		41	−0.09*	−1.81	−0.08	−1.55	

post-switch, it becomes apparent that the firms voluntarily adopting U.S. GAAP standards are of the high disclosure quality type. For their pre-switch local GAAP financial statements, the average SCORE of 72.89 is remarkably high. After the adoption of U.S. GAAP, the already high level is then further increased. Although the magnitude of this increase appears to be economically significant, its statistical significance under the conventional test statistics is rather low due to the small number of companies. When using the bootstrap method instead to test for such differences, both the increase in SCORE as well as the decrease in RANK (absolute in change and relative in difference-in-difference) are significant, even at the 1 per cent level.

For Swiss firms (Table 4, Panel B), during the 2000–04 sample period for which we have data, there is only a small number of six firms switching to IAS/IFRS (and none switching to full U.S. GAAP reporting). This is probably because Swiss firms were granted the possibility of adopting non-local financial reporting standards in 1996 and no further change in regulation required a mandatory adoption of international standards before 2005. Accordingly, the situation in Switzerland during the sample period approaches an equilibrium whereby firms have chosen their reporting standards optimally, according to their perceived benefits and costs.

This situation is reflected in the relative SCORE and RANK variables. For the six firms switching from local GAAP to IFRS in the sample period, we observe an increase in the mean (median) scores from the very low mean (median) level of 31.82 (30.62) to 43.18 (44.10). This marks an average increase of 36 per cent (median increase of 44 per cent). However, when benchmarked against the average increase of the local GAAP reporters, the premium in points is only 2.11 (mean) and 3.88 (median), and not statistically significant. Similarly, when ranked against the other Swiss firms, of which many have already reported according to international standards, the relative decrease in the RANK measure is only moderate and statistically insignificant.

In Austria, during the sample period 1997–2004, forty-one firms switched to IFRS and only Mayr-Melnhof to U.S. GAAP (dropped from this analysis). The switch analysis for Austria is complicated by the fact that the evaluation schemes assigned by the experts have changed considerably over time. Accordingly, a comparison of the SCORE variable in a pre- versus post-change analysis is not appropriate and we report only the results for the relative difference-in-difference analysis which should balance differences over time due to the corresponding AHGB reference group. As compared to these local GAAP reporters, IFRS adopters gained on average plus 5.02 points (median 1.96 points). This difference is only weakly significant under the conventional tests, but turns out to be highly significant at the 1 per cent level with the bootstrap method. The same is true for the RANK measure, under which IFRS adopters gained on average 9 relative ranks.

Accordingly, in all three countries we detect a significant increase in the disclosure scores (both absolute and relative to a group of local GAAP reporters) with the adoption of IFRS financial statements.

Univariate Results: Financial Reporting Standards and Reporting Incentives

It is increasingly understood that not only the reporting standards *per se*, but also the varying reporting incentives of individual firms in a specific institutional setting largely determine the transparency and quality of financial reporting (e.g., Ball *et al.*, 2000; Ball *et al.*, 2003). In order to analyse the effects of differing reporting incentives at the firm level on our results, we study various subgroups of firms which have adopted internationally recognized reporting standards under supposedly different reporting incentives.[21]

Except for the firms listed in the U.S. and those either listed in the German New Market or included in the TechDAX or SDAX indexes of Deutsche Börse from 2002 and thus required by regulation to adopt internationally recognized standards, all other Austrian, German and Swiss firms which have switched before the fiscal year 2005 to either IAS/IFRS or U.S. GAAP have done so voluntarily. Firms which are granted by regulation a choice of which set of accounting standards they apply will optimally choose their financial reporting regime according to their individual perceived benefits and the costs of that decision. As a voluntary switch to non-local standards is understood as a costly signal to provide more and better information, firms which provide already relatively more information can produce this signal at less cost. Also, firms that have the incentives and are willing to provide more transparency will choose a regime switch to internationally recognized standards. Accordingly, in case firms voluntarily choose to adopt IFRS of U.S. GAAP, we cannot attribute a measurable increase in the disclosure effect to the reporting standards alone, but to some combination of the effects of the reporting standards and the reporting incentives. It is not clear which relative weight can be assigned to accounting standards in this case.

The results in Table 5, Panel A, generally confirm empirically the conjecture that the firms which voluntarily adopt non-local standards are a special subgroup of firms: The mean (median) local GAAP HGB-pre-switch score of 68.68 (67.33) and the relative mean (median) rank of 0.37 (0.28) for the 59 voluntary German switch companies are significantly higher than the scores and relative ranks of companies that continue to apply local GAAP. Thus, voluntary non-local GAAP adopters have, on average, disclosure scores that are more than 10 points higher—even under the same set of local GAAP accounting standards—than non-switching local GAAP reporters. This confirms the above argument that the firms which voluntarily switch are seeking higher transparency. The results are very similar for the Austrian firms. Again, the mean (median) scores assigned for the forty-two pre-switch local GAAP AHGB fiscal years of the Austrian switch companies are more than 13 (12) points higher than the mean (median) score of non-switch local GAAP reporters. An exception to our findings, however, is Switzerland, for which our results are inconclusive: The six Swiss firms which switch in the period 2000–04 show lower average SCOREs (but also lower average RANKs) under local GAAP FER in the pre-switch fiscal year as compared to the other non-switch FER reporters.

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[21] As we analyse only firms within a similar German-origin institutional setting, our results may not be attributable to other institutional settings which may trigger different reporting incentives. In our research design we are unable to analyse the effects of reporting incentives *across* different institutional settings.

TABLE 5

DISCLOSURE QUALITY, REPORTING STANDARDS AND INCENTIVES: UNIVARIATE ANALYSIS

Panel A: Voluntary non-local GAAP adopters (Germany, Switzerland, Austria)

		Score						Rank					
		n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
GER	HGB Pre-Switch Year	59	68.68		67.33		13.23	59	0.37		0.28		0.29
	HGB Non-Switch	584	56.10		58.10		14.48	584	0.56		0.56		0.27
	Difference	Δ	−12.58***	−6.40	−9.23***	−6.05		Δ	0.19***	4.97	0,28***	4.62	
SWISS	FER Pre-Switch Year	6	31.82		30.62		12.65	6	0.48		0.49		0.19
	FER Non-Switch	227	36.70		37.67		11.95	227	0.55		0.56		0.25
	Difference	Δ	4.88	0.99	7.05	0.89		Δ	0.07	0.72	0.07	0.77	
AUS	AHGB Pre-Switch Year	42	55.66		54.48			42	0.41		0.39		
	AHGB Non-Switch	264	42.44		42.01			264	0.69		0.76		
	Difference	Δ	−13.22***	−4.86	−12.47***	−4.30		Δ	0.28***	6.62	0.37***	5.78	

Panel B: Early (up to 1999) vs late (from 2000) non-local GAAP adopters (Germany)

	Score						Rank					
	n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
HGB Pre-Switch Early	10	62.07		61.67		16.88	10	0.34		0.27		0.31
HGB Pre-Switch Late	68	67.23		66.17		12.97	68	0.45		0.41		0.29
Difference	Δ	5.16	1.13	4.50	0.98		Δ	0.10	1.01	0.14	1.17	
IFRS/U.S. GAAP Post-Switch Early	9	73.11		73.33		8.45	9	0.19		0.16		0.16
IFRS/U.S. GAAP Post-Switch Late	41	75.99		77.60		10.40	41	0.31		0.23		0.23
Difference	Δ	2.88	0.77	4.27	0.85		Δ	0.12	1.47	0.07	1.34	

TABLE 5

(CONTINUED)

Panel C: Mandatory non-local GAAP adopters (German New Market/TechDAX and SDAX from 2002)

		Score						Rank					
		n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
All	HGB	50	55.66		57.95		16.12	50	0.71		0.79		0.26
	IFRS	107	63.96		63.33		13.13	107	0.56		0.55		0.25
	U.S. GAAP	132	59.31		60.70		13.67	132	0.66		0.68		0.20
	IFRS vs. HGB	Δ	8.30***	3.41	5.38***	3.38			−0.15***	−3.53	−0.24***	−3.76	
	U.S. GAAP vs. HGB	Δ	3.65	1.53	2.75*	1.91			−0.05	−1.47	−0.11**	−2.13	
	U.S. GAAP vs. IFRS	Δ	−4.65***	−2.64	−2.63**	2.49		Δ	0.10***	3.40	0.13***	3.03	
Switch	HGB pre-switch	19	60.01		61.00		12.54	19	0.62		0.61		0.25
	IFRS/U.S. GAAP post-switch	19	72.68		76.60		11.82	19	0.39		0.34		0.24
	Change	Δ	12.67***	3.21	15.60***	2.91		Δ	−0.23***	−2.98	−0.27***	−2.64	
	Difference-in-difference	ΔΔ	11.72***	3.19	15.20***	3.08		ΔΔ	−0.28***	−3.42	−0.34***	−3.02	

Panel D: U.S.-listed firms (Germany, Switzerland)

		Score						Rank					
		n	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*	*n*	Mean	Diff. *t*-stats	Median	Diff. *Z*-stats	*SD*
GER	U.S. Listed	87	77.34		80.20		12.66	87	0.23		0.17		0.23
	Non-U.S. Listed IFRS/U.S.	295	72.08		75.00		13.28	295	0.38		0.32		0.27
	Difference	Δ	−5.25***	−3.28	−5.20***	−3.88		Δ	0.14***	4.54	0.15***	4.73	
SWISS	U.S. Listed	43	55.06		56.68		12.42	43	0.14		0.06		0.16
	Non-U.S. Listed IFRS/U.S.	288	40.39		41.67		13.01	288	0.43		0.38		0.27
	Difference	Δ	−14.67***	−6.94	−15.02***	−6.19		Δ	0.29***	6.82	0.33***	7.16	

We further analyse whether the timing of the adoption plays an important role for the underlying reporting quality under internationally recognized standards. The focus is on German firms only for this analysis as these have the longest time-series of comparable data (1996–2003). Whereas the very early adoptions before 1998 of internationally recognized standards by German firms have been characterized as strategic long-term commitments towards more transparency (Leuz and Verrecchia, 2000), the late 'voluntary' IFRS adoptions in the transition period after the European Commission announced in 2002 the decision to require IFRS from 2005 have more the flavour of timing decisions than of a voluntary strategic disclosure choice. The later the companies adopted non-local GAAP, the closer this step is to the mandatory adoption of IFRS in 2005. Accordingly, if follow-up companies adopted IFRS as a 'cheap quality label' without changing much in their financial reporting (Ball *et al.*, 2003), one would expect to see significant differences in the levels and changes of the disclosure scores of early versus late non-local GAAP adopters. In Table 5, Panel B, we analyse whether there is a difference between early adopters (until the fiscal year 1999) and late adopters (from fiscal year 2000 onwards).[22] Instead, our results document rather small and insignificant differences in the mean (median) scores of the two groups. The pre- and post-switch scores are even higher for late adopters, but have to be seen in the context of their having improved over time, as have the financial reporting standards themselves, particularly IFRS. This effect probably is reflected in our findings that the average and median RANKs are better for the early adopters (contrary to our findings using the SCORE variable), but still the differences are not statistically significant. In addition, both the early adopters and the late adopters have significantly higher mean and median scores after switching to internationally recognized accounting standards.

German companies listed on the New Market or included in the TechDAX or SDAX indexes of Deutsche Börse are required to apply IAS/IFRS or U.S. GAAP. Companies listed in the SDAX, previously publishing their HGB annual reports, had to switch by the year 2002. For these firms, self-selection should be less an issue as they were (still) granted a choice between IFRS or U.S. GAAP, but not between local GAAP and internationally recognized standards. For these mandatory IFRS or U.S. GAAP adopters, we find in Table 5, Panel C, that mean (median) scores and relative ranks for non-local GAAP financial statements are significantly better compared to the remaining HGB financial statements. Companies mandatorily adopting IFRS have even higher mean (median) SCOREs of 63.96 (63.33) than those adopting U.S. GAAP in these segments of 59.31 (60.70), contrary to the common conjecture that high quality firms would select U.S. GAAP (see Leuz, 2003). This difference is significant at the 1 per cent level. Particularly interesting to analyse is the subset of nineteen German firms for which we have data around their mandatory switch to IFRS or U.S. GAAP. For these firms, the mean (median) pre-switch local GAAP HGB scores and relative ranks are very close to the mean (median) scores and ranks of the non-switch HGB companies. After the mandatory switch to IFRS or U.S. GAAP, however, the mean (median) scores increased significantly, by 12.67 (15.60) SCORE points or 21 per cent (26 per cent). Similarly, the mean (median) rank improved significantly by 23 (27) standardized ranks. This increase in disclosure quality is equally significant, both statistically and economically, when we benchmark that change in score against the change in score of non-switching local GAAP reporters in a difference-in-difference analysis. Accordingly, our results show that not only voluntary, but also mandatory non-local GAAP adopters increase their annual report ratings significantly after the adoption of internationally recognized reporting standards.

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[22] The choice of the fiscal years 1999 and 2000 as cut-off years is made to reflect a comparatively balanced sample size and period length across the two groups. The results are not sensitive to other reasonable cut-off fiscal years (e.g., 1998 pre § 292a HGB and 1999 post § 292a HGB; or 2002 pre the EU announcement to require IFRS and 2003 post the announcement).

Finally, in Table 5, Panel D, we compare the scores and relative ranks of companies applying either IAS/IFRS or U.S. GAAP that are not listed in the U.S. to those firms which are listed on a U.S. stock exchange (NYSE or NASDAQ) and are thus under the enforcement of the SEC and under U.S. legal liability.[23] We focus here on German and Swiss firms, as Telekom Austria is the only Austrian U.S.-listed firm in the sample. Pooled across all years, the mean (median) scores are significantly higher and the mean (median) relative ranks are significantly lower for the companies that are subject to the stricter enforcement of the SEC ($p < .001$ under all test statistics). This finding is in line with prior research on the bonding effects of U.S. listing (e.g., Lang *et al.*, 2003; Hail and Leuz, 2004). It applies both to the German and to the Swiss sample firms, but is particularly strong for the U.S.-listed Swiss firms reporting on average scores that are nearly 15 points (or 36 per cent) higher than non U.S.-listed Swiss IFRS or U.S. GAAP reporters.

Taken together, the univariate results support the notion that individual firm-level incentives play an important role in determining the overall disclosure quality of financial reports. Firms which have switched voluntarily to a higher disclosure regime have been shown to seek transparency as compared to other non-switch firms, even under local GAAP standards. Similarly, firms which choose to list in the U.S. have been shown to bond themselves to higher transparency. However, our analyses, and particularly our results for the mandatory adopters of IFRS, also suggest that the financial reporting standards play an important role in determining transparency as the annual report ratings have improved significantly with and after IFRS adoption.

Multivariate Results: Financial Reporting Standards and Reporting Incentives

So far, we have controlled for only one firm characteristic at a time. Now we present multivariate results controlling for a set of firm characteristics. The definition and data sources (Panel A), the descriptive summary statistics (Panel B) and the pairwise Spearman correlation coefficients (Panel C) for our control variables are in Table 6. The summary statistics relating to these variables are generally

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[23] We collect the information on an international firm's listing on NYSE from http://www.nyse.com/international/nonuslisted/int_listed.html and on NASDAQ from http://www.nasdaq.com/asp/NonUsOutput.asp?page=G&region=europe.

TABLE 6

REPORTING INCENTIVES AND CONTROL VARIABLES

Panel A: Control variables and data sources

Variable	Definition	Data source
Industry dummies	One-digit SIC code based on Thomson Financial General Industry Classification	Worldscope
Year dummies	Fiscal year, based on Worldscope classification	Worldscope
MCAP	Log market capitalization at fiscal year end	Worldscope
TA	Log total assets at fiscal year end	Worldscope
NO	Average number of analysts following the firm during a fiscal year	IBES
LEV	Total debt divided by market capitalization	Worldscope
FFLOAT	Free float	Worldscope
CAPINT	Property, plant & equipment divided by total assets	Worldscope
ROA	Return on Assets, average over the last five years—if not available, last ROA instead	Worldscope
US_LISTING	Dummy variable, 1 if listed on NYSE or NASDAQ, 0 otherwise	NYSE, NASDAQ
NM_TECH	Dummy variable, 1 if listed on New Market or TechDAX, otherwise	Capital/Focus Money
INT_ST	Dummy variable, 1 for IFRS or U.S. GAAP, 0 for local GAAP	Annual Reports

Panel B: Descriptive statistics

Panel B1: Germany

Variable	*N*	Mean	Median	Q1	Q3	Min	Max
MCAP	1,685	6.177	5.925	4.853	7.442	2.922	10.845
TA	1,685	6.674	6.444	5.098	8.006	3.198	12.806
NO	1,685	13.702	10.385	3.429	23.538	0.000	40.583
LEV	1,685	0.117	0.079	0.013	0.180	0.000	0.547
FFLOAT	1,685	0.431	0.430	0.164	0.648	0.070	0.997
CAPINT	1,685	0.241	0.219	0.090	0.357	0.001	0.770
ROA	1,685	−0.434	4.612	1.369	7.689	−69.407	36.991
US_LISTING	1,685	0.076	0.000	0.000	0.000	0.000	1.000
NM_TECH	1,685	0.165	0.000	0.000	0.000	0.000	1.000
INT_ST	1,685	0.418	0.000	0.000	1.000	0.000	1.000

Table 6

(continued)

Panel B2: Switzerland

Variable	*N*	Mean	Median	Q1	Q3	Min	Max
MCAP	714	5.491	5.575	2.945	6.781	2.861	11.266
TA	714	6.306	6.154	3.810	7.643	3.515	13.434
NO	714	5.727	3.000	0.000	7.900	0.000	38.083
LEV	714	0.122	0.076	0.000	0.210	0.000	0.640
FFLOAT	714	0.391	0.371	0.017	0.683	0.017	1.000
CAPINT	714	0.203	0.168	0.000	0.331	0.000	0.962
ROA	714	2.682	2.490	−5.361	6.431	−5.361	22.339
US_LISTING	714	0.060	0.000	0.000	0.000	0.000	1.000
INT_ST	714	0.480	0.000	0.000	1.000	0.000	1.000

Panel C: Pairwise Spearman correlation coefficients

Panel C1: Germany

Variable	MCAP	TA	NO	LEV	FFLOAT	CAPINT	ROA	US_ LISTING	NM_ TECH	INT_ ST
MCAP	1									
TA	0.814	1								
NO	0.703	0.688	1							
LEV	0.135	0.320	0.108	1						
FFLOAT	0.280	0.330	0.349	0.167	1					
CAPINT	0.124	0.236	0.172	0.470	0.166	1				
ROA	0.180	−0.057	0.083	0.029	0.066	0.178	1			
US_LISTING	0.336	0.260	0.347	−0.001	0.170	0.095	0.100	1		
NM_TECH	−0.141	−0.347	−0.172	−0.292	−0.065	−0.337	−0.060	−0.001	1	
INT_ST	0.285	0.185	0.202	−0.007	0.154	−0.127	0.045	0.193	0.327	1

Panel C2: Switzerland

Variable	MCAP	TA	NO	LEV	FFLOAT	CAPINT	ROA	US_ LISTING	INT_ ST
MCAP	1								
TA	0.878	1							
NO	0.802	0.642	1						
LEV	0.259	0.331	0.110	1					
FFLOAT	0.482	0.421	0.391	0.294	1				
CAPINT	0.170	0.095	0.079	0.568	0.308	1			
ROA	0.579	0.362	0.401	0.279	0.513	0.400	1		
US_LISTING	0.378	0.319	0.526	−0.033	0.076	−0.086	0.086	1	
INT_ST	0.489	0.346	0.481	0.169	0.336	0.229	0.400	0.263	1

in line with expectations and prior research. In addition, they show that the German sample firms are on average larger than the Swiss sample firms (Panel B1 and B2). The mean number of analysts following a firm during the fiscal year in Germany (13.7) and in Switzerland (5.7) further confirms that our samples are biased towards larger, more actively covered firms as compared to the total population of listed firms in Germany and Switzerland. In Panel C, we present the Spearman correlations between our variables. As expected, the two variables which capture firm size (MCAP and TA) are highly positively correlated. Firm size is also strongly positively correlated with the number of analysts following a firm (NO). Firm size is further positively related to US_LISTING, and to the ROA in the Swiss case. Due to the high correlation of the size-related variables, we include only one of the variables MCAP, TA or NO in our regressions, and report for brevity in Table 7 only the results based on the total assets variable.[24]

Table 7, Panel A, summarizes the results of the panel regressions when utilizing the full sample of German (Model 1 and 2) and Swiss (Model 3 and 4) firms. We regress our independent variables on SCORE (Models 1 and 3) as well as on RANK (Models 2 and 4). In all four regressions, the international reporting standards dummy variables (INT_ST) are highly significant with the expected sign of the coefficient ($p < .001$, based on Huber-White adjusted standard errors). When regressed on SCORE, reporting under internationally recognized standards (IFRS or U.S. GAAP) increases the achieved score assigned by the experts by about 7.10 points in Germany (Model 1) and 3.25 in Switzerland (Model 3). Similarly, the rank decreases by about 14 relative ranks in Germany (Model 2) and 10 ranks in Switzerland (Model 4). As expected, the disclosure quality as perceived by the reporting experts increases significantly with firm size and U.S. listing. The magnitude of the coefficients on U.S. listing, both for Germany (3.21) and especially Switzerland (9.83), again underlines the importance of firms' bonding towards a high level of disclosure. Similarly, our results document significantly lower quality scores (−9.67) and higher relative ranks (0.19) for the young growth firms listed on the German New Market or similar follow-up segments (NM_TECH). An interesting result significant only for Germany is that accounting quality scores and relative ranks improve with the percentage of shares not held by blockholders (FFLOAT).

The multivariate regression coefficients could be biased due to the fact that most of our sample firms have voluntarily chosen to adopt international standards. In order to analyse the importance of the reporting incentive variables relative to the reporting standards applied, we focus in Table 7, Panel B, on the set of switch firms for which we have data available pre- and post-adoption of international standards ($n = 443$ observations). We first regress SCORE on a dummy variable capturing the accounting regime switches to IFRS or U.S. GAAP and assess the importance of this variable in Model 1. We find the coefficient on the reporting switch dummy variable to be positive (10.13) and statistically significant at the

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[24] The total assets (TA) variable seems to be the size-related variable that is generally the least correlated with the other control variables. Our main results, particularly the level of significance of the international reporting dummy variable, are not sensitive to the inclusion of the one or other control variable.

TABLE 7

DISCLOSURE QUALITY, REPORTING STANDARDS AND INCENTIVES: MULTIVARIATE ANALYSIS

Panel A: All firms

	Germany		Switzerland	
	Model 1 score	Model 2 rank	Model 3 score	Model 4 rank
Industry dummies	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
MCAP	. .	. .	. .	. .
TA	2.50 (9.61)***	−0.04 (−8.69)***	1.87 (4.06)**	−0.05 (−5.12)**
NO	. .	. .	. .	. .
LEV	−0.31 (−2.70)***	0.19 (2.09)**	1.09 (0.19)	−0.20 (−1.54)
FFLOAT	4.50 (2.89)***	−0.08 (−2.74)***	3.42 (1.52)	−0.04 (−0.94)
CAPINT	−0.49 (−0.16)	−0.06 (−0.87)	−3.71 (−1.20)	0.21 (2.40)**
ROA	−0.02 (−0.59)	0.00 (0.94)	−0.34 (−2.83)***	0.00 (1.33)
US_LISTING	3.21 (1.81)*	−0.07 (−1.92)*	9.83 (3.56)***	−0.17 (−2.98)***
NM_TECH	−9.67 (−6.37)***	0.19 (6.38)***	. .	. .
INT_ST	7.10 (6.28)***	−0.14 (−6.42)***	3.25 (2.62)***	−0.10 (−2.84)***
Constant	41.58 (13.60)***	0.78 (12.26)***	22.23 (11.41)***	0.88 (20.30)***
N	1,527	1,527	714	714
Adj. R^2	43.4%	35.5%	26.9%	32.1%

Panel B: Subgroups of firms

	Firms switching to internationally recognized financial reporting standards		Mandatory adoption of internationally recognized financial reporting standards	
	Model 1 score	Model 2 score	Model 3 score	Model 4 rank
Industry dummies	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
MCAP	. .	. .	. .	. .
TA	. .	1.79 (3.63)***	1.59 (1.60)	−0.02 (−1.08)
NO	. .	. .	. .	. .
LEV	. .	−9.87 (−1.29)	−6.41 (−0.87)	0.06 (0.43)
FFLOAT	. .	4.61 (1.18)	2.57 (0.88)	−0.06 (−0.90)
CAPINT	. .	−2.11 (−0.37)	0.51 (0.09)	−0.02 (−0.19)
ROA	. .	−0.01 (−0.13)	0.10 (2.30)**	0.00 (−2.47)**
US_LISTING	. .	5.03 (1.66)*	−3.19 (−1.52)	0.07 (1.82)*
NM_TECH	. .	−12.73 (−2.80)***	−6.05 (−2.23)**	0.14 (2.32)**
INT_ST	10.13 (4.64)***	6.70 (3.37)***	7.97 (3.37)***	−0.15 (−3.12)***
Constant	62.32 (31.98)***	45.70 (11.51)***	60.58 (10.81)***	0.68 (6.77)***
N	443	443	333	333
Adj. R^2	30.0%	39.9%	42.1%	22.9%

1 per cent level (t-value of 4.64). Model 2 then includes various control variables reflecting the reporting incentives in order to assess their relative ability to capture the effect of the change in disclosure quality around the reporting switch. Although we find that the reporting incentive variables add to the explanation of the variation in SCORE (Adj. R^2 increases from 30 per cent to 39.9 per cent), we also find that the international reporting dummy remains highly significant (t-value of 3.37). The reporting switch dummy variable remains an important determinant of the perceived disclosure quality in magnitude (6.70) and in explanatory power (3.37). As such, the change in perceived disclosure quality that is associated with the adoption of internationally recognized standards cannot be fully attributed to changes in the adopting firm's reporting incentives (which we capture by our control variables).

In order to address the self-selection issue, we further run our multivariate regression on the set of firms which have mandatorily adopted internationally recognized financial reporting standards (n = 333 observations). Table 7, Panel B, also reports the analysis of the 333 firm-year observations which reflect the quality scores of companies which were at time forced by regulation to adopt internationally recognized standards. We regress the reporting dummy variable (INT_ST) together with the other control variables on SCORE (Model 3) and RANK (Model 4). Again, the international reporting dummy variable is highly significant ($p < .001$) in both regressions and appears to be economically significant based on the magnitude of the coefficients as well (7.97 in the SCORE-based Model 3 and −0.15 in the RANK-based Model 4).

We further conducted a series of multivariate tests in order to check the sensitivity of the results (not tabulated). Instead of pooling the observations across years, we ran yearly OLS regressions and found the international reporting dummy to be significant in the various years. Similar to our analyses in the univariate section, we ran regressions with bootstrapped standard errors and found similar results. Overall, the results are equally strong for the international reporting dummy variable, independent of the statistical method utilized.

In sum, our multivariate results show that the adoption of internationally recognized reporting standards has led to higher quality financial reporting as perceived by the experts, even when controlling for other firm characteristics, or when analysing only mandatory reporting changes.

CONCLUSIONS

The findings reported here provide large, sample-based evidence on the 'missing link' in the line of argument that 'higher quality' international accounting standards (IAS/IFRS; U.S. GAAP) lead to higher quality accounting reports that should ultimately lead to higher liquidity in the capital markets (Leuz and Verrecchia, 2000) and lower cost of capital to the reporting entities (Daske 2006). Our evidence is based on a unique and broad set of listed companies from Austria, Germany and Switzerland for which annual report ratings by independent accounting scholars ('experts') are available over a long time series, covering in particular the periods after the year 1998 when the IAS/IFRS standards were revised considerably.

Our results show that the perceived disclosure quality has increased significantly for companies applying internationally recognized accounting standards, particularly IFRS, both statistically and economically in all the three Continental European countries we analyse. This result holds both in the cross-section as well as for the firms switching from local to internationally recognized standards. Importantly, it does not hold only for firms which have voluntarily adopted IFRS or U.S. GAAP, but also for those which mandatorily adopted such standards in response to requirements by the German Stock Exchange for specific market segments. Although it is difficult to establish direct causality due to inherent self-selection issues for most of our adopting sample firms, our evidence strongly suggests that the quality of financial reports has significantly increased with the adoption of IFRS financial statements.

As Austria, Germany and Switzerland are all Continental European countries with a common (German) accounting tradition and with a close similarity of many institutional features in their socioeconomic systems, our study implicitly controls for other institutional factors at the country level that might influence the quality of accounting reports. Although the companies included in our sample comprise in total more than 22 per cent of the total population of worldwide IAS/IFRS adopters by the year 2004, the research design constrains our ability to analyse the effects of different institutional settings across countries and jurisdictions under an equal set of global accounting standards. Such an analysis will only become possible as more countries adopt IFRS.[25] The mandatory adoption of IFRS in the EU in 2005 and many other countries will offer a rich setting for such research in the near future.

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[25] See www.iasplus.com/country/useias.htm for the latest information on the countries which have adopted IFRS.

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APPENDIX A

SUMMARY OF ANNUAL REPORT RANKING METHODS

Panel A: Germany (1996–2003)

Fiscal year	Source	Jury	Criteria	Score	Total score	Adjustments
1996	*Capital* 10/1997, 60–100	Prof. Küting (University of Saarbrücken)	Information quality (*Informationsqualität*)	0–400	0–1040	Use only scores for information quality
		Team of public relations experts	Layout (*Präsentationsqualität*)	0–340		Adjust to 0–100%
		Prof. Loistl (WU Wien)	DVFA analysts' rating (*Analystenurteil*)	0–300		
1997 1998	*Capital* 9/1998, 38–79 *Capital* 10/1999, 40–74	Prof. Küting (University of Saarbrücken)	Information quality (*Informationsqualität*)	0–300	0–1000	Use only scores for information quality
		Team of public relations experts	Layout (*Präsentationsqualität*)	0–200		Adjust to 0–100%
		Prof. Loistl (WU Wien)	DVFA analysts' rating (*Analystenurteil*)	0–500		
1999	*Capital* 21/2000, 78–96	Prof. Küting (University of Saarbrücken)	Information quality (*Informationsqualität*)	0–300	0–500	Use only scores for information quality
		Team of public relations experts	Layout (*Präsentationsqualität*)	0–200		Adjust to 0–100%
2000	*Capital* 20/2001, 171–187	Prof. Küting (University of Saarbrücken)	Information quality (*Informationsqualität*)	0–500	0–1000	Use only scores for information quality
		Team of public relations experts	Layout (*Präsentationsqualität*)	0–500		Adjust to 0–100%
2001 2002 2003	*Focus Money* 30/2002, 14–25 *Focus Money* 32/2003, 12–19 *Focus Money* 33/2004, 18–23	Prof. Küting (University of Saarbrücken)	Information quality (*Informationsqualität*)	0–1000	0–2000	Use only scores for information quality
			Ratio-analyis (*Ertragsstärke*)	0–1000		Adjust to 0–100%

Panel B: Switzerland (2001–2004)

Fiscal year	Source	Jury	Criteria	Weights	Total score	Adjustments
2001 2002	*Bilanz* Okt. 2002, 170–182 *Bilanz* Okt. 2003, 130–143 www.isb.unizh.ch/publikationen	Prof. Labhart (University of Zurich) Interbrand Zintzmeyer & Lux	Value reporting Design (*Gestaltung*)	50% 50%	0–5	Use only scores for value reporting Adjust to 0–100%
2003 2004	*Bilanz* Okt. 2004, 109–117 *Bilanz* 17/2005, 50–56 www.isb.unizh.ch/publikationen	Prof. Labhart (University of Zurich) Design Network Switzerland	Value reporting Design (*Gestaltung*)	50% 50%	0–5	Use only scores for value reporting Adjust to 0–100%

Panel C: Austria (1997–2004)

Fiscal year	Source	Jury	Criteria	Weights	Total score	Adjustments
1997 1998	*Goldener Trend* 1998, 98–103 *Trend* 10/1999, 234–239	Prof. Bertl (WU Wien) Prof. Langenbucher (Uni. of Vienna)	Financial information (*Betriebswirtschaft*) Non-financial information (*Publizistik*)	50% 30%	0–100% & Expert rating	none
1999	*Trend* 10/2000, 242–248	Team of Design Experts	Layout (*Design*)	20%		
2000 2001 2002	*Trend* 11/2001, 161–172*Trend* 10/2002, 160–174 *Trend* 10/2003, 140–160 www.iasar.com	Prof. Wagenhofer (Uni. of Graz) Prof. Langenbucher (Uni. of Vienna) Team of Design Experts	Financial information (*Betriebswirtschaft*) Non-financial information (*Publizistik*) Layout (*Design*)	50% 30% 20%	0–100% & Feinanalyse	none
2003 2004	*Trend* 10/2004, 120–136 *Trend* 10/2005, 128–134 aaa-2004.genesto.com/ aaa-2005.genesto.com/	Prof. Wagenhofer (University of Graz) Prof. Langenbucher (Uni. of Vienna)	Financial information (*Business Reporting*) Non-financial information (*Mediumsqualität*)	50% 50%	0–200 points second-stage analysis only for top 20%	0–100% first stage data only

APPENDIX B

RAW SCORES: DESCRIPTIVE STATISTICS

Panel A: Germany (information quality only)

Fiscal year	*N*	Mean	*SD*	Min	Max
1996	200	242.5	54.2	80.0	360.0
1997	202	155.5	45.9	14.0	257.0
1998	204	176.5	44.5	14.0	259.0
1999	222	180.4	55.2	0.0	280.0
2000	199	331.2	79.7	0.0	500.0
2001	209	690.1	130.2	175.0	924.0
2002	155	684.1	135.3	262.0	895.0
2003	136	699.3	133.6	196.0	904.0

Panel B: Switzerland (value reporting only)

Fiscal year	*N*	Mean	*SD*	Min	Max
2001	158	1.46	0.79	0.00	4.27
2002	177	2.45	0.56	1.38	4.39
2003	177	2.56	0.57	1.65	4.28
2004	200	2.66	0.64	1.35	4.44

Panel C: Austria (total score)

Fiscal year	*N*	Mean	*SD*	Min	Max
1997	92	56.5	12.1	23.9	82.0
1998	90	57.3	14.7	17.0	90.8
1999	93	56.7	15.8	15.0	89.1
2000	95	45.9	16.3	9.8	89.4
2001	98	39.9	17.1	11.3	87.9
2002	83	40.6	12.5	11.7	65.6
2003	83	48.8	18.3	9.4	85.2
2004	81	62.3	16.3	22.7	91.4

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NATALIE GALLERY

Discussion of Daske and Gebhardt

The internationalization of accounting standards by many countries is set to significantly change companies' financial reports. Standard setters, governments and securities exchanges have been united in the push towards a common set of international accounting standards. Expected benefits of internationalizing accounting standards include increased comparability and providing financial report users with better quality information on which to base their investment and credit decisions (AASB 1994).

The question of whether adoption of international accounting standards leads to improvements in the quality of information presented in financial reports has been the subject of an increasing number of recent studies. Much of this research is motivated by the wholesale adoption of International Financial Reporting Standards (IFRS) by European Union (EU) countries and others, such as Australia. This study by Daske and Gebhardt (hereafter DG) is similarly motivated by the widespread adoption of IFRS. They seek to find evidence of whether adoption of internationally recognized standards by companies in Austria, Germany and Switzerland has led to higher quality financial reporting. An important distinction between the DG study and other similar studies is that most other studies have only *indirectly* tested disclosure quality, whereas DG more *directly* test this issue through experts' disclosure quality scores of companies' annual reports.

Prior research generally examines quality of information under international accounting standards using proxies, such as timeliness of recognizing unrealized losses in income (Ball *et al.*, 2003), lower bid-ask spreads (Leuz and Verrecchia, 2000), increases in analysts' earning forecast accuracy (Ashbaugh and Pincus, 2001), differences in value relevance of disclosures, and reductions in firms' cost of capital (Barth *et al.*, 2005). The use of proxies can give rise to problems with interpreting results due to potential correlated omitted variables and measurement error in the proxies (Joos, 2000). The DG study avoids such issues by using direct measures of disclosure quality. Using independent experts' ratings of disclosure quality, DG test for differences between the scores of firms applying domestic standards and those applying IFRS or U.S. GAAP. They report that disclosure scores of domestic standard firms are consistently lower than firms applying IFRS or U.S. GAAP, and these results hold for firms which voluntarily adopted IFRS or U.S. GAAP, as well as for certain firms which are required to adopt those standards.

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DG's findings provide compelling evidence that disclosure quality has increased with the adoption of IFRS or U.S. GAAP. They caution that their evidence cannot establish direct causality due to self-selection issues. Other matters which were raised by forum participants and which also need to be considered when interpreting their results include: (a) the extent to which the disclosure scores measure financial reporting quality, (b) standardization of the experts' scores over time and across institutional settings, and (c) including firms that adopted U.S. GAAP in the analysis.

Measuring quality of financial information is inherently problematic. Ball *et al.* (2003, footnote 3, p. 237) define 'quality' as 'the extent to which accounting information reflects the underlying economic situation of the firm. It is related to the concept of "transparency," defined as the ability of users to "see through" the financial statements to comprehend the underlying accounting events and transactions in the firm.'

The IASB Framework specifies the objective of financial reports as providing information useful for decision making, and identifies four principal qualitative characteristics that determine the usefulness of information in financial reports: understandability, relevance, reliability and comparability. If accounting standards are developed so that they are consistent with the framework's financial reporting objective and qualitative characteristics, it can be assumed that the resulting standards are of 'high quality'. However, as observed by Ball *et al.* (2003, p. 260), 'high-quality standards do not guarantee high-quality financial reporting'. They suggest that country-specific institutional influences on preparers' financial reporting incentives are a predominant factor impacting on the quality of financial reporting, and those incentives are subject to both political and market forces. Political forces include the extent to which accounting standards are codified and enforced, and market forces relate to the extent of demand for high-quality financial reporting. Given these political and market forces, Ball *et al.* (2003, p. 259) conclude: 'homogenizing accounting standards alone will have a limited effect *on the quality of accounting information actually reported*' (emphasis in original).

In their study, DG use independent experts' ratings of company annual reports as a measure of financial reporting quality. They compare disclosure quality scores of companies which prepared their financial reports using domestic accounting standards, and those that used IFRS or U.S. GAAP, to see whether there are systematic differences in the scores under the alternative accounting standards. In using those experts' scores, DG implicitly assume the scores directly measure *financial* reporting quality. However, from the information in DG's Appendix A, it appears that the scores are based on both financial and non-financial disclosures. DG acknowledge that the scores for the Austrian sample firms are noisy disclosure quality measures due to inclusion of non-financial information in the rating scheme. The scores for the Swiss and German samples also appear to include some non-financial information, but perhaps to a lesser extent. It is therefore unknown to what extent voluntary and other non-financial disclosures that are not subject to international accounting standards compliance contribute to improving the disclosure ratings. Could it be that companies adopted IFRS/U.S. GAAP as part of a broader program of improved corporate governance practices, including disclosure? If so, the strategic changes firms may have made concurrently with adopting IFRS/U.S. GAAP are potentially correlated omitted variables.

A related issue is the difference in the disclosure quality scoring systems across the three countries and within countries over the study period. DG's score standardization methods appear to be effective in creating a common base for comparing the scores over time within countries. However, as DG rightly point out, the significant differences in the rating schemes of the three countries means that the scores are not directly comparable between countries. Changes to the German scoring system during the study period potentially threaten the validity of their findings. Nevertheless, their results show that for each year of the study period, the standardized scores and rankings are consistently higher for firms adopting IFRS/U.S. GAAP than those with reports prepared in accordance with domestic GAAP. The most compelling evidence is for the German firms that switched from domestic GAAP to IFRS/U.S. GAAP, with significantly higher average scores and rankings in the year after the switch than in the immediately preceding year. Their results, however, are presented on a pooled basis and it would have been interesting to see whether they generally hold for each year.

The focus of the DG study is International Financial Reporting Standards, yet they include in their sample firms which adopted U.S. GAAP. They do not explain why U.S. GAAP adopting firms are included, but infer an expectation that firms applying 'internationally recognized' accounting standards will have higher disclosure quality scores than those applying domestic GAAP. DG provide separate analyses of domestic standards versus each of IFRS and U.S. GAAP. Clearly, the IFRS and U.S. GAAP groups of firms are not homogeneous, given the significant differences in the average scores for each group in both Switzerland and Germany. Moreover, the direction of the differences in scores are *positive* for German firms (IFRS-firms scored higher than U.S. GAAP firms), and *negative* for Swiss firms (IFRS-firms scored lower than U.S. GAAP firms). Yet DG pooled the IFRS and U.S. GAAP adopters into one category for their multivariate analysis. It is not evident how such pooling has affected their results (weakened or strengthened) but the regression analyses can largely only be interpreted as evidence of differences between domestic and non-domestic GAAP. Pooling of U.S. GAAP adopting firms with IFRS firms in the regression analyses somewhat weakens their conclusion that 'the quality of financial reports has increased significantly with the adoption of IFRS'.

DG also compare the scores and relative ranks of companies listed on a U.S. stock exchange (and therefore apply U.S. GAAP) with IFRS/U.S. GAAP adopters not listed in the U.S. and find that for both the German and Swiss samples, the U.S.-listed firms have significantly higher average scores and rankings. They interpret this result as consistent with prior research which suggests that firms that are subject to enforcement by the Securities and Exchange Commission (SEC) and exposed to greater legal liability in the U.S., effectively 'bond' themselves to higher transparency when they list on a U.S. securities exchange. However, DG could have tested the effects of U.S. listing on disclosure scores more directly by comparing only the U.S. GAAP non-U.S. listed firms with those listed in the U.S., to confirm whether U.S. listing has such a bonding effect.

Notwithstanding these reservations, DG provide convincing evidence that adoption of IFRS/U.S. GAAP is associated with better quality reporting. The validity of their findings is also enhanced by the fact that they use a direct measure—experts' disclosure quality ratings—in testing, rather than proxies used by many other studies examining this issue.

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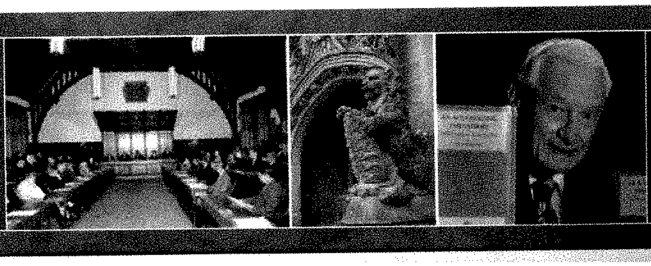

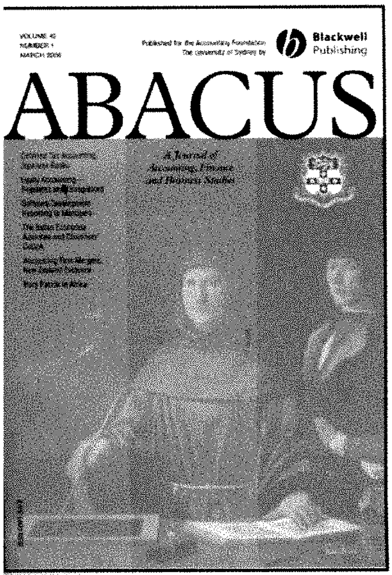

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